1987-89 BULLETIN

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PURDUE UNIVERSITY NORTH CENTRAL

Announcements for the Years 1987-89

For further information contact:
Office of Admissions and Placement
Purdue University North Central
1401 S. US 421
Westville, IN 46391-9528
(219) 785-2541/872-0527/462-4197
(800) 872-1231 (Inside Indiana)
(800) 327-4567 (Outside Indiana)

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An Equal Access/Equal Opportunity University

Cover photo by Michael Bankowski, professional photographer and Purdue University North Central graduate.

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Nothing in this bulletin should be considered a contract. This is for information purposes only.

A copy of PURDUE UNIVERSITY REGULATIONS is available for review in the Registrar's Office, Counseling Center, and at the Switchboard. These regulations cover the following areas: History and Organization of the University, Academic Regulations and Procedures, Classification of Students for Tuition Purposes, Statements on Nondiscrimination, Student Conduct, Regulations and Procedures for Recognized Student Organizations, and Regulations Governing the Use and Assignment of University Facilities.

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PURDUE UNIVERSITY

OFFICERS OF ADMINISTRATION

West Lafayette Campus

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VARRO E. TYLER, Ph.D. .... Executive Vice President for Academic Affairs
FREDERICK R. FORD, Ph.D. ..... Executive Vice President and Treasurer
ROBERT L. RINGEL, Ph.D. ..... Vice President for Research and Dean of the Graduate School

North Central Campus

DALE W. ALSPAUGH, Ph.D. ..... Chancellor
W. PATRICK LEONARD, Ph.D. ..... Vice Chancellor for Academic Services
G. WILLIAM BACK, J.D. ..... Vice Chancellor for Administration
H. FRED MILLER, B.S. ..... Director of Campus Development

GENERAL INFORMATION

LOCATION

PURDUE UNIVERSITY is the Indiana link in a nationwide chain of land grant colleges and universities. In addition to the main campus in West Lafayette, Purdue University has established a series of regional campuses for the purpose of extending educational opportunities to the major population areas of Indiana. Purdue University North Central, located on a 264 acre site at the junction of the Indiana Toll Road and U.S. 421 in Westville, serves communities in the north central part of the state.

HISTORY OF PURDUE UNIVERSITY NORTH CENTRAL

Following World War II Purdue University started offering courses in facilities loaned to the University by the Michigan City and LaPorte schools. The programs in each of these areas grew, and in 1948 the Barker Welfare Foundation made available to the University the John Barker mansion. All of the area classes were consolidated in this fine old structure in the spring of 1949. Through the 1950's enrollments at the Barker Memorial Center continued to grow, as did the population of the north central region of the state. By the early 1960's it was evident that this part of the state was due for a population boom and significant industrial expansion, and Purdue began to make plans for a new regional campus that could more adequately serve the area. In May of 1962 Purdue University, through the Ross-Ade Foundation, purchased 160 acres near Westville, Indiana at a location that could best serve the residents of LaPorte County and Porter County.

With the site available, serious plans started on the development of the first building for the new campus. The Education Building, containing 90,000 square feet, provided modern academic facilities when it opened its doors in 1967. The building was renamed Robert F. Schwarz Hall in 1984 in memory of the first dean and director of the North Central Campus.

In the span of time since 1967, Purdue University North Central has undergone many changes. They are all indicative of the rapid growth of the area and the increasing educational demands the campus must meet. Additional parcels of land have been added to the original holding of 160 acres making a total acreage of 264 acres.

In 1969, the Indiana General Assembly appropriated funds for construction of a second building. The Library-Student-Faculty Building was dedicated in March, 1975. It encompasses 100,000 square feet of space, 30,000 of which serve as the library facility. The remainder of the area is used for classrooms, faculty offices, cafeteria, bookstore, and student recreation facilities.

In the spring of 1985, a Robotics and Flexible Manufacturing Technology Laboratory was completed. The 2600 square foot facility houses equipment for teaching and research in the fields of manufacturing systems including robotics, numerical control machinery, and automated guided vehicle systems.

Purdue University North Central was designated a general purpose institution by the Indiana Commission for Higher Education in October 1986. This action reflects Purdue University North Central's continuing social and economic impact upon its service area.

Prestige of the North Central Campus has been further enhanced with the North Central Association of Colleges and Secondary Schools award of an operationally separate accreditation from the Purdue system. Purdue University North Central is also accredited by the National League for Nursing and by the Accreditation Board for Engineering and Technology. Accreditation attests to the quality of the faculty and staff, the excellence of courses and curricula, and the adequacy of facilities.

ORGANIZATION

Purdue University North Central operates as an integral part of Purdue University. Faculty members hold their appointments in Purdue departments and teach courses under departmental control. With the exception of courses in the School of Community College, course numbers and content are similar for all campuses of the University and readily transfer within the Purdue University system. Faculty members receive promotion through a University-wide promotion system.

PURPOSE AND FUNCTION

Purdue University is dedicated to service in the land grant tradition. As a regional campus, Purdue University North Central continues this tradition by bringing the educational opportunities of a great University to a constantly increasing number of students who might otherwise not be able to share the benefits of the University.

It is the function of Purdue University North Central to provide courses and programs for regular full-time university students working toward degrees. At the same time, it is also the purpose of the institution to make similar opportunities available to part-time students, many of whom are pursuing their educational objectives in the evening. As a member of the community of northern Indiana, Purdue University North Central has a strong obligation to provide educational opportunities, both credit and noncredit, related to the nature of the population and the social, economic, and industrial development of the area.

In accordance with a long-standing policy of the Board of Trustees of Purdue University and in compliance with state and federal laws and regulations, Purdue University North Central is an equal access and equal opportunity campus. The University promotes and reaffirms this policy through a program of positive action affecting all organizational units which are managed by, or affiliated with, Purdue University. Through this program, the University carries out the requirements of Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Employment Act of 1972, Federal Executive Orders 11246 and 11375, the Rehabilitation Act of 1973, the Vietnam Era Veterans Readjustment Act of 1967, the Age Discrimination Employment Act of 1967, the Indiana Civil Rights Act of 1971, as amended, and all other applicable state and federal laws, guidelines, and regulations, and indicates its active support of the principles of equal opportunity in employment. The University will, furthermore, take affirmative action to see that these regulations and necessary activities are integrated into all University policies, procedures, and practices.

It is the policy of Purdue University that all persons will be viewed, evaluated, and treated, in any University-related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications and other characteristics relevant to the situation.

The University provides equal opportunity in all phases of employment and in its policies without regard to race, religion, color, national origin, age or sex, except

where age or sex is a bona fide occupational qualification. The University will not discriminate against any individual because of physical or mental handicap in regard to any position for which the individual is qualified, and shall take affirmative action to employ and advance in employment women, minorities, the handicapped, disabled veterans, and veterans of the Vietnam Era.

PROGRAMS

Purdue University North Central offers the educational opportunities of a great University to a constantly increasing number of students who might otherwise not be able to share the benefits of the University.

Although academic work at a number of different levels is offered at Purdue University North Central, primarily the emphasis has been on:

1. The Bachelor's Degree curriculum in Supervision;
2. The Bachelor's Degree curriculum in Liberal Studies;
3. The Bachelor's Degree curriculum in Elementary Education;
4. The Bachelor's Degree curriculum in Mechanical Engineering Technology;
5. Associate degree curricula in nursing, general business, restaurant management, and various fields of technology;
6. Certificate curricula in general business, computer technology, supervision, and mechanical enginnering technology.
7. Selected graduate courses in a limited number of subject-matter fields and a complete master's program in elementary education;
8. Freshman and sophomore courses offered in areas leading to the Bachelor of Science or the Bachelor of Arts Degree at another campus of Purdue University or at other colleges or universities. In order to complete the baccalaureate degree in one of these programs, transfer to another campus is necessary;
9. The Community College which opens post-high school opportunities to a broad range of students. Based on the concept of "open admission," the Community College provides an opportunity to overcome high school deficiencies and gain admission to one of the regular curricula of the University. Some of the Community College programs are not available on other campuses;
10. Programs, conferences and short courses related to the interests of the people in the neighboring communities.

Many students who do not plan to complete a degree at any of the campuses of Purdue University use the North Central Campus to obtain one or two years of credits for transfer to other universities. Since the work taken at the North Central Campus carries regular Purdue University credit, transferability to other universities presents no problem when transferring between compatible curricula.

ADMISSION

GENERAL REQUIREMENTS

All persons wanting to take advantage of the opportunity for higher education at the North Central Campus of Purdue University must file an application for admission. Requests for information and application forms should be addressed to:

Office of Admissions and Placement
Purdue University North Central
1401 S. US 421
Westville, Indiana 46391-9528

Students pursuing baccalaureate or associate degree programs must be high school graduates or G.E.D. recipients (see G.E.D. section below). Prospective students should complete the application according to instructions and then forward the form to the high school from which they are to be or already have been graduated. The high school should then complete the application and return it to the Office of Admissions and Placement at the address listed above.

High school students should make application during their seventh semester of high school, or as soon as possible thereafter. High school graduates should make application immediately. This enables the University to evaluate fully an applicant's eligibility for consideration and to notify the applicant at an early date of the action taken, thus allowing the applicant to make educational plans.

GENERAL EDUCATIONAL DEVELOPMENT (GED) GRADUATE

Prospective students who have earned a GED diploma should complete the application according to instructions, attach a copy of their GED test results, and forward the forms to the high school they last attended.

GED students are admitted to the Community College Bridge Program, which is designed to serve as a bridge from the student's present academic level to a level of competency needed for a successful performance at Purdue University.

ADMISSION REQUIREMENTS

An admissions decision is made after an evaluation of the student's total record. Quality requirements include subjects taken, grades in academic courses, high school rank, test scores, and counselor's evaluation.

Students who graduate from non-English speaking high schools must see the Chairman of the Language and Letters Section before enrolling in English courses.

An individual's eligibility for consideration will depend upon many factors, among which are:

1. subject matter requirements for the school or program to which the student is applying:
2. high school class standing;

3. College Entrance Examination Board test results;
4. high school comments and recommendations;
5. previous college work, if any;
6. other personal information.

Quality Guidelines are listed on Page 12.

TEST SCORE REQUIREMENTS

The SAT or ACT examination is required of all applicants who have graduated from high school within the last three years. The SAT or ACT examination is recommended but not required of applicants having graduated more than three years ago, or of those students seeking entry into the Community College regardless of when these students graduated.

For applicants currently attending high school, it is preferred that the SAT or ACT examination be taken in the spring of the junior year.

ALTERNATIVE ACTIONS ON APPLICATIONS

On the basis of the factors considered, one of the following actions will be taken on the individual's application:

1. Granted unqualified regular admission—this means that the applicant has met all entrance standards and requirements for admission.
2. Admitted to the Bridge Program of the Community College—this applies to the applicant whose academic background and preparation do not meet the entrance standards and/or requirements, but who the University feels has a reasonable chance of gaining regular admission at a later date.
3. Admission on probation—this means admission with the warning of the University that the applicant is academically deficient. If the applicant does not achieve a 3.2 average on a 6.0 system in the first semester the student will be dropped from the University.
4. Admission denied.

Any admission to the University is provisional pending the receipt of all required student information. The University reserves the right to cancel any admission if a student fails to provide all necessary credentials, or if fraudulent statements are made by the applicant in the application for admission.

	HIGH SCHOOL SUBJECT MATTER REQUIREMENTS			Overall Quality Requirements Academic records should reflect quality that is:	
School/Program	**Mathematics**	**Laboratory Science**	**English**	**Indiana Residents**	**Out-of-State Residents**
Engineering	3 semesters algebra 2 semesters geometry 1 semester trigonometry	2 semesters*** (Engineering also requires 2 semesters of Chemistry)	6 semesters	upper 1/2 upper 1/2 upper 1/2	upper 1/4* upper 1/2 upper 1/2
Science					
Health Sciences					
Economics	3 semesters algebra 2 semesters geometry 1 semester trigonometry	2 semesters***	8 semesters	upper 1/2	upper 1/3
Humanities, Social Science, and Education	2 semesters algebra 2 semesters geometry	2 semesters***	8 semesters	upper 1/2	upper 1/2
Consumer and Family Sciences	4 semesters academic math**	2 semesters***	6 semesters	upper 1/2	upper 1/2
Management	6 semesters academic math**	2 semesters***	6 semesters	upper 1/2	upper 1/2
Agriculture	6 semesters academic math**	4 semesters***	8 semesters	upper 2/3	upper 1/2
Nursing	2 semesters algebra 2 semesters geometry	2 semesters***	6 semesters	upper 1/2 upper 2/3	upper 1/2 upper 1/3
Technology					
Bachelor of Physical Education	2 semesters of high school math	2 semesters***	6 semesters	upper 2/3	upper 1/2
Community College	No specific subject matter requirements except student's overall record must indicate a reasonable chance of gaining regular admission.			High school graduation or GED	

*The most qualified out-of-state applicants applying for admission to the Schools of Engineering will be selected from those applications that reflect minimum upper 1/4 quality.

**Academic math includes algebra, geometry, trigonometry, calculus, etc. Not included are pre-algebra, general math, computer math, consumer math, business math, etc.

***Laboratory science generally means biology, chemistry, or physics.

QUALITY REQUIREMENTS

Quality is determined by considering a combination of class rank, grade-point average, grade average in subjects related to degree objectives, trends in achievement throughout high school, fulfillment of high school subject-matter requirements, strength of college preparatory program, and standardized test results.

Indiana residents applying to the schools of Consumer and Family Sciences; Engineering; Humanities, Social Science, and Education; Management; Pharmacy, Nursing, and Health Sciences; and Science must present academic records that can be determined as upper-half quality. Indiana residents applying to Agriculture, Technology, and the Bachelor of Science in Physical Education must present academic records that can be determined as upper two-thirds quality.

Out-of-state residents applying to the Schools of Engineering must present records that can be interpreted as strong upper-quarter quality.

FOREIGN STUDENTS

Applicants from foreign countries will be admitted without examination on the basis of credentials certifying to the completion of preparatory studies equivalent to the 15 units required and to the full extent and character of their previous education. Foreign applicants must also furnish sufficient evidence of adequate financial support for the entire period of their schooling.

Official translations must accompany transcripts and other credentials in Oriental, Slavic, and certain European languages. The applicant must submit satisfactory evidence of the ability to read, write, and speak English.

The advisor to foreign students assists such students in entering the University and provides counseling and other services after they have arrived on campus.

TRANSFER STUDENTS

An applicant transferring from another college or university must fulfill the following requirements in order to be considered for admission:

1. Submit an application for admission on the prescribed form through the high school from which the student was graduated, including the SAT test results.
2. Forward an official transcript of work done in institutions previously attended to the Office of Admissions and Placement at the North Central Campus.
3. Transfer students must meet subject matter requirements, have a strong C average (out-of-state students B), and be in good standing at all schools attended.

TRANSFER CREDIT

Credit for courses in Purdue University will be given for work of equivalent character and amount successfully completed at another accredited college. Advanced standing will be determined on the basis of these credits. Advanced credit will be regarded as provisional and may be withdrawn by the Director of Admissions and

Placement upon recommendation of the head of the department concerned if dependent work is not satisfactorily completed.

When credit earned at another college or university is transferred to Purdue and accepted toward advanced standing, the credit is converted into terms of Purdue courses and applied to the program of study. It remains for the student to complete the program, and the student's schedule of courses each term will be adjusted accordingly. It does not follow that the student's classification in the University or the time necessary for completion of the required work for a degree will be in line with what was expected at the previous institution.

Grades are not transferred; only credit in the course is recorded.

Credit earned at other institutions will be evaluated in terms of how it fulfills the graduation requirements at Purdue University. Evaluation of credit is completed after a student is admitted to the University.

NONDEGREE STUDENTS

Persons who desire to take advantage of the instruction in any of the departments of the University without undertaking one of the regular plans of study and without becoming a candidate for a degree may be admitted as nondegree students. Such students must present evidence that they are prepared to undertake the work desired and must progress satisfactorily in their work.

Admission as a nondegree student is for one semester only and any further enrollment must be approved by the Office of Admissions and Placement. A maximum of 11 credit hours may be taken in any one semester and a maximum of 24 credit hours may be taken while classified as a nondegree student.

A personal interview with a member of the Office of Admissions and Placement staff prior to admission as a nondegree student is encouraged. All students who have been previously enrolled in another institution must have a letter of good scholastic and social standing on file with the Office of Admissions and Placement prior to enrollment. Application for admission as a nondegree student should be made to the Office of Admissions and Placement at the North Central Campus.

SUPERIOR HIGH SCHOOL STUDENTS

A high school student with a highly superior scholastic record during the first three years of high school may qualify for admission to Purdue as a non-degree student without high school graduation.

The regular entrance requirements are supplemented by certain objective measurements of the student's fitness to advance to the university level. By this means, the University endeavors to recognize and provide for individual rates of learning and achievement.

A nongraduate of high school will be considered for admission provided that the applicant(s):

1. Has earned not less than 24 credits toward graduation
2. Has a highly superior school record
3. Is strongly recommended by the high school principal

4. Parents recommended college entrance without high school graduation
5. Qualifies by performance on prescribed admission tests
6. Is approved by the University Committee on Admission.

Purdue cannot be held responsible for guaranteeing high school diplomas under this arrangement, but it cooperates with whatever arrangement the state or local school system may have for awarding a high school diploma to a successful participant in this plan.

RE-ENTRY STUDENTS

Any person in good standing who has formerly attended Purdue but has not been in attendance for a semester or more must submit an application for re-entry obtainable from the Registrar's Office. Each individual situation will determine the status of the person's eligibility for re-entry.

RE-ADMISSION OF STUDENTS

Any person who has been formally dropped from the University for academic reasons and wishes to re-enter must make application for re-admission to the Scholastic Delinquencies and Re-admissions Committee. Forms for initiating this procedure are available in the Registrar's Office at the North Central Campus.

ADVANCED PLACEMENT AND ADVANCED CREDIT

What is meant by advanced placement and advanced credit?

1. Advanced placement means that a student is placed in an advanced level course but no credit toward a degree is awarded for prior courses.
2. Advanced credit means that college credit is established in one or more subjects and the total credit is recorded on the student's record. Advanced credit usually involves advanced placement.

Who should consider establishing advanced credit?

The student who has taken a strong college preparatory program, has achieved at a high level, and has strong test results should seriously consider the possibility of establishing advanced credit. Personal factors as well as your academic record should be considered.

How is advanced placement and/or advanced credit established?

Advanced credit or advanced placement can be established by any of the following methods:

1. Advanced credit examinations. Any questions about advanced credit should be directed to the Dean of Students at Purdue University North Central.
2. The College Board Achievement Test.

   Credit can be established on the basis of test results taken at the completion of the advanced placement course in high school. The score required to establish credit varies according to the test. Students entering the schools of Agriculture; Consumer and Family Sciences; Humanities, Social Science and

Education; and Management may receive five semester hours of math by scoring 580 or above on either of the CEEB math achievement tests.

3. College Board Advanced Placement Program.

   Credit can be established on the basis of test results taken at the completion of the advanced placement course in high school. The score required to establish credit varies according to the test.

The following table outlines the credit hours awarded:

Advanced Credit

Subject Area	College Board/ Advanced Placement (AP) Score	Purdue Credit Granted
Art		
Art history	3, 4, or 5	3 sem. hrs.
Studio art	3, 4, or 5	3 sem. hrs.
Biological sciences	4 or 5	8 sem. hrs.
Chemistry	3	3 sem. hrs
	4 or 5	8 sem. hrs.
English	3, 4, or 5	3 sem. hrs.
History		
American	3, 4, or 5	6 sem. hrs.
European	3, 4, or 5	3 sem. hrs.
Mathematics	3	5 sem. hrs.
	4 or 5	10 sem. hrs.
Modern languages	3	6 sem. hrs.
	4	9 sem. hrs.
	5	12 sem. hrs.
Physics	3, 4, or 5	0-4 sem. hrs.

College-Level Examination Program (CLEP)

This program evaluates nontraditional college-level education such as independent study, correspondence work, and credit earned from nonaccredited institutions.

1. General Examination.

   Credit will be given on the basis of the General Examination only for the English Composition exam with essay. If you are a transfer student who previously attended a nonaccredited institution, you may take the General Examination. If you receive an average score of 500 or above on the five tests, the credit you established at the nonaccredited institution may be evaluated for credit at Purdue.

2. Subject-Matter Examinations.

   Purdue credit may be established by taking the subject-matter examinations listed on this page.

College-Level Examination Program (CLEP)

CLEP General Exam	Purdue Equivalent	Credit	Score Required
English composition w/essay	ENGL 103	3	49+

CLEP Subject-Matter Exam	Purdue Equivalent	Credit	Score Required
Accounting, introductory	MGMT 200	3	45+
American history I	HIST 151	3	50+
American history II	HIST 152	3	50+
Biology, general	BIOL 121, 122, 131, 132	8	48+
Business management, introduction to	MGMT 100 MGMT Undistributed	1 2	45+
Calculus, with elementary functions	MA 161 & 162	10	55+
Chemistry, general	CHM 100	3	55+
	CHM 101 & 102	7	70+
	CHM 107	3	50+
	CHM 109	4	55+
	CHM 109 & 110	8	70+
	CHM 111	3	50+
	CHM 111 & 112	6	65+
	CHM 115	4	55+
	CHM 115 & 116	8	70+
College algebra—trigonometry	MA 151	5	57+
College composition w/essay	ENGL 103	3	60+
Educational psychology	ED 285	3	51+
Human growth and development	CDFS Undistributed	3	45+
Psychology, general	PSY 120	3	60+
Sociology, introductory	SOC 100	3	45+
Western civilization I	HIST 102 & 103	6	50+
Western civilization II	HIST 104	3	50+

AUDITING CLASSES (VISITORS)

A person who is not already enrolled as a student in the University and who wishes to attend a course in the University without credit shall obtain from the Registrar's Office, a visitor's permission form and complete it stating visitor's name, the number of the course, the date of attendance permitted, and the fact that no credit is to be allowed. The Registrar shall issue a visitor's permit upon written recommendation of the instructor and approval by the head of the department administering the course. No person who is ineligible for readmission by reason of that person having been dropped from the University for scholastic or other reasons, shall be eligible to attend classes as a visitor.

A person who has status in the University by reason of admission to and registration in a definite classification may enroll in a course as a visitor. The assignment and enrollment must be completed by the regular procedure for visitor registration. The assessment of fees and determination of allowable load shall be in accordance with the credit value or equivalent of the course(s) involved. A visitor in a course shall be entitled to hear lectures, recitations, and oral quizzes. A visitor shall not participate in classroom exercises except as invited by the instructor. The visitor shall neither submit papers, when tests or examinations are given, nor take part in laboratory work. A visitor shall receive no credit for the course. However, if the visitor has been, is, or shall be registered later as a student in the University, then that person may apply for examination for credit, under the usual rules, in the course which was attended as a visitor.

RESERVE OFFICER TRAINING

Students planning to transfer to the West Lafayette Campus are eligible, upon transfer, for a two-year advanced ROTC program leading to a commission in the Army, Navy, and Air Force. The program is available to anyone having four full academic semesters remaining on the West Lafayette Campus, including graduate school.

Students applying for the two-year program and accepted by the service concerned attend a six-week summer training camp during the summer immediately preceding their planned entry into ROTC classes, which may be either in the fall or spring semester. This six-week training substitutes for the first two years of basic ROTC.

Two-year students receive the same benefits as four-year ROTC students. These include a monthly allowance, free uniforms, and free military textbooks. Scholarships are also available which pay full tuition, books, and fees plus a monthly tax-free allowance. Flight training is available in the last year for those who are interested and qualify.

There is no obligation incurred in applying for this program. Applications are accepted until approximately April 1 of each year.

For further information and additional details, you may call or write:

U.S. Army ROTC
Purdue University
Purdue Armory
West Lafayette, Indiana 47907-0001
Telephone: (317) 494-2099

U.S. Air Force ROTC
Purdue University
Purdue Armory
West Lafayette, Indiana 47907-0001
Telephone: (317) 494-2042

U.S. Naval and Marine ROTC
Purdue University
Purdue Armory
West Lafayette, Indiana 47907-0001
Telephone: (317) 494-2055

HOUSING

Purdue University North Central is a commuter institution. Housing accommodations are not available on the campus. However, many apartment dwellings exist within a 5-10 mile radius. It should be understood that there is no public transportation available to the campus.

FINANCIAL AID

The Financial Aid Office will attempt to provide aid to eligible students who require financial assistance to attend Purdue University North Central. Students must maintain satisfactory academic progress as outlined in the section on Financial Aid in the Student Handbook.

APPLICATION PROCESS

In order to be considered for financial aid a student must gain admission as a degree-seeking student at Purdue University North Central and must complete the appropriate application forms. The priority filing date for those seeking campus-based aid for the academic year commencing in the fall semester is March 1. Applications submitted after June 1 can be considered only for the spring semester. An application for financial aid must be submitted for each year that aid is requested. All students are urged to file the Financial Aid Form (FAF).

AVAILABLE FINANCIAL AID

The chart below lists the types of aid available, the qualifications for each, and the required application forms. Financial aid programs are subject to revision without notice by the state or federal government.

Financial Aid

TYPE OF AID	QUALIFICATIONS	REQUIRED FORMS
Pell Grant	U.S. citizen Financial need 6 or more semester hours	Financial Aid Form (FAF) or Application for Federal Student Aid
Indiana Educational Grant	U.S. citizen Indiana resident planning to attend a college or university within Indiana Financial need 12 or more semester hours	Financial Aid Form (FAF) by March 1
Murdock-Woodard Scholarship	Upper 10% of High School Graduating Class	Application obtained from high school counselor and submitted to Purdue University North Central

Financial Aid (Cont'd)

TYPE OF AID	QUALIFICATIONS	REQUIRED FORMS
Ruth Mitnick Memorial Nursing Scholarship	Second year nursing student from Michigan City with financial need	Purdue University North Central application
John Stich Memorial Scholarship	Good academic standing with financial need	Purdue University North Central application
Child-of-Disabled-Veteran Grant	U.S. citizen Indiana resident Either parent suffered a service-connected disability to which the VA will attest Financial need is not a consideration	Child-of-Disabled-Veteran application to be filed 6 weeks prior to the start of the semester Verification from Veterans' Administration 4 weeks prior to the start of the semester
Purdue Alumni Association - North Central Scholarship	Minimum 9 credit hours completed at PNC G.P.A. 4.5 Returning to PNC in following fall	PAA-NC application before March 15
Supplemental Educational Opportunity Grant	U.S. citizen 12 or more semester hours Exceptional need	Financial Aid Form (FAF) by March 1 Purdue University North Central application
Perkins NDSL	U.S. citizen Financial need 6 or more semester hours	Financial Aid Form (FAF) by March 1 Purdue University North Central application
College Work/Study	U.S. citizen Financial need 6 or more semester hours	Financial Aid Form (FAF) by March 1 Purdue University North Central application
Guaranteed Student Loan	U.S. citizen or permanent resident Minimum 6 hours Satisfactory academic progress	Guaranteed Student Loan Application package from Financial Aid Office Financial Aid Form (FAF)
Robert F. Schwarz Scholarship	24 semester hours 5.5 GPA or better Returning to PNC in following fall	Schwarz Scholarship application before March 30
John J. Stanfield Scholarship	Recommendation of English Department faculty	No application

REGISTRATION

ADVANCED REGISTRATION

Approximately midway through each semester, opportunity is provided to register for the following semester. This is called advanced registration. Advanced registration eliminates standing in line and assures preferential scheduling. Advanced registered students are billed for fees and may pay fees by mail or in person. New students will be informed by the Admissions and Placement Office of registration times. Every effort should be made to register at these times.

DELAYED REGISTRATION

For students who are unable to participate in the advanced registration program, a registration period is held just prior to the beginning of classes. Consult the current semester's schedule for dates and times or contact the Registrar's Office.

LATE REGISTRATION

The late registration period for the fall and spring semesters ends one week after the first day of classes. In the summer session, the late registration period closes three days after the first day of classes. Registration during this period will incur a late registration fee (see page 30).

CLASS ATTENDANCE

Students are expected to be present for every meeting of the classes in which they are enrolled. All matters relative to attendance, including making up of work missed, are matters for arrangement between the student and instructor involved. It is expected that all instructors at the beginning of the semester will make a clear statement to all of their classes regarding their policy in handling absences. Students who fail to meet their class engagements satisfactorily may be denied credit for exercises missed. The instructor will be responsible for counseling with the student whose absences endanger the student's academic performance. A problem of excessive absences may be referred to the Dean of Students by either the instructor or the student if further information is needed or if either feels that further discussion would resolve the problem. Instructors obtaining information concerning the absence of a student due to personal factors are requested to report such knowledge at once to the Dean of Students. If a student is absent from all the meetings of any regularly scheduled class for a period of two successive weeks, the student may be reported to the Dean of Students for appropriate action. If a student becomes seriously delinquent in attendance, the student may be dropped from the course by the Committee on Scholastic Delinquencies and Readmissions.

ALLOWABLE ACADEMIC LOAD

A student's academic load shall be arranged, so far as possible, in accordance with the following policy:

1. Credit hours in excess of 18 hours during a regular session should be carefully monitored by the academic advisor, who may wish to consult with appro-

priate University personnel concerning the student's prognosis for success. Unless the student's curriculum requirement for that session is specified as greater than 18 credit hours, approval by the section chairperson of the student's curriculum and by the Vice Chancellor for Academic Services must be obtained before the student may be assigned more than 18 credit hours.

2. In summer session, no one may be assigned to more than nine credit hours without approval by the section chairperson of the student's curriculum and by the Vice Chancellor for Academic Services.

ASSIGNMENT TO INTENSIVE COURSES

No person shall be permitted to register in two intensive courses in the summer session at the same time. In general, no one who is taking an intensive course shall be permitted to take another nonintensive course at the same time, except, in special cases, with the approval of the instructor in the intensive course, the head of the department administering the intensive course, and, for graduate students, the dean of the Graduate School.

ASSIGNMENT TO A DEPENDENT COURSE

A student who received a grade of F or N in any course shall not be admitted to any dependent course (one requiring the failed course as a prerequisite as set forth in the catalog), and any assignment to or enrollment in such dependent course shall be cancelled. Enrollment in a dependent course may also be cancelled if the student has not taken the prerequisite course or otherwise satisfied the stated requirements for enrolling in the course.

A student who received a grade of E, I, or PI in any course may be admitted to a dependent course on trial with the approval of the head of the department administering the course. A transfer student deficient in prerequisite courses may also be admitted to a dependent course on trial with the approval of the department head. If any student on trial is reported delinquent, the student's assignment to the course may be cancelled upon the recommendation of the instructor and with the concurrence of the department head.

If a student on trial in a dependent course completes the course with a passing grade, his achievement may, by prior agreement, be construed as satisfying the requirements for changing an E grade in any prerequisite course in the same department, provided the department head approves and reports the change of grade properly to the Registrar. However, satisfactory work in a dependent course shall not relieve the student of the requirement to complete required work in any prerequisite course in which a grade of I, or PI (incomplete) was received. None of these provisions shall deprive a student of the opportunity to resolve a grade of E, I, or PI in the normal manner.

SCHEDULE REVISIONS

Schedule revisions may occur following the beginning of a semester or session and are governed by policies intended to be uniformly administered across the various schools of the University. Students may revise their schedule in accordance with the following policy:

1. Course Additions, Change of Level, or Change of Pass/Not-Pass Option. A student may add a course, change course level, or change the pass/not-pass option during the first four weeks of a semester or the first two weeks of a summer session by obtaining on the schedule revision form the signatures of the academic advisor and the instructor of the course to be added or changed, if in their judgments the student could satisfactorily fulfill the course objectives.

   In the case of extenuating circumstances, course changes may be made during weeks five through nine of a semester or during weeks three through four and one-half of a summer session, upon recommendation of the student's academic advisor, instructor, and head of the department in which the course is listed. Such course changes shall not be made during the last seven weeks of a semester or three and one-half weeks of a summer session.

Week	Restrictions
1	Approval of academic advisor
2-4	Approval of academic advisor and instructor
5-9	Extenuating circumstances only. Approval of academic advisor, instructor, and head of the department in which the course is listed
10-16	Not permitted

Cancellation of Assignment.
Students shall receive a grade for every course in which they are assigned unless the course assignment has been properly cancelled at the Registrar's Office upon presentation by the student of a request approved by the academic advisor. If there are extenuating circumstances, these must be stated on the request.

When a course assignment is cancelled prior to the end of two weeks of a semester or one week of a summer session, the course will not be recorded on the student's record. When a course assignment is cancelled after two weeks and prior to the end of four weeks of a semester or after one week and prior to the end of two weeks of a summer session, a grade of W shall be recorded.

After four weeks and prior to the end of the nine weeks of a semester or after two weeks and prior to the end of four and one-half weeks of a summer session a course assignment may be cancelled upon the request of the student with the approval of the academic advisor. The instructor shall indicate whether the student is passing or failing. If the student is not passing, the case may be referred by either the student or the instructor to the Dean of Students, who, after consultations with the dean or the designee of the student's school and other appropriate University agencies, shall determine whether there are sufficient extenuating circumstances beyond the student's reasonable control to justify the cancellation of the course assignment without a failing grade.

No course assignment shall be cancelled within the last seven weeks of any semester or three and one-half weeks of a summer session.

A student's enrollment in a course may be cancelled for excessive absences by the Committee on Scholastic Delinquencies and Readmissions

upon the recommendation of the instructor with the concurrence of the academic advisor and the approval of the dean of the student's school. The appropriate directed grade shall be recorded.

Week	
1-2	Approval of academic advisor; course will not be recorded.
3-4	Approval of academic advisor; course will be recorded with grade of W.
5-9	Approval of academic advisor. The instructor shall indicate whether the student is passing or failing. A grade of W, WF, or WN will be recorded. In case of a W, WF, or WN exceptions shall be determined by the Director of Student Services. Students with a semester classification of 1 or 2 need not have instructor's signature. Grades recorded for these students will be W.
10-16	Course assignments cannot be cancelled during this period.

2. The cancellation of all course assignments constitutes withdrawal from the University. Cancellation of all course assignments as a result of withdrawal shall be treated and recorded in the same manner as the cancellation of a single course assignment with the additional provision that the Dean of Students shall determine and assign the appropriate effective date to the withdrawal.

3. Exceptions. Exceptions to the preceding regulations for registration, schedule revision, and cancellation of assignment may be made for courses that do not span the regular semester or summer session.

TRANSFER OF ENROLLMENT TO ANOTHER PURDUE UNIVERSITY CAMPUS

Upon the completion of any semester or summer session a student may transfer enrollment from the North Central Campus to another Purdue University campus. To initiate this process the student must complete an appropriate form available through the Admissions and Placement Office. Following this procedure an "Authorization for Enrollment" form from the intended campus of registration and instructions for registration will be sent to the student. Only students attending on regular status and not on probation may effect such transfers.

Community College students must be admitted to a school before they are eligible to transfer.

STUDENT SERVICES

COUNSELING CENTER

The goal of the Counseling Center is to help the individual attain a stage of development where an honest self-appraisal can be conducted. The Counseling Center offers services in the following areas:

1. *Personal Counseling*
   Individual counseling is available for a variety of problems which may cause personal distress or maladjustment.

2. *Vocational Counseling*
   Career counseling is available for individuals who are dissatisfied with their present major in college and/or those individuals who have not clarified their immediate or long-range vocational goals.

3. *Group Counseling*
   Group facilitators are available on a semester basis to aid individuals interested in the "value clarifications" process. A maximum of sixteen students can be accommodated.

4. *Educational Counseling*
   The Counseling Center provides services to students experiencing difficulty in their academic work. Assistance is available in study techniques, scheduling of study time and other problems related to academic performance. The Center acts as advisor to non-degree and Community College students.

5. *Testing*
   Individual tests relating to achievement, aptitude, personality, mental ability and interest are available upon request. Also a specially developed test battery is available at a fee of $10.00 for enrolled students and $40.00 for non-students.

SPECIAL SERVICES

Funded by the Department of Education, Special Services is a program designed to assist disabled, low income, and/or first-generation college students, on an individualized basis, to maximize their academic potential and achieve their academic goals. A professionally trained staff provides academic and personal support including pre-admission counseling, assistance in obtaining financial aid, diagnostic testing, test interpretation, assistance in development of an appropriate plan of study, orientation to college, remedial and developmental work, personal, social, career, educational, and academic counseling. Disabled students are assisted in making arrangements which will allow them to enjoy full access to the educational opportunities of the University.

To be eligible for the Special Services program a student must be:

1. A citizen or national of the United States; a permanent resident of the U.S. or the Trust Territory of the Pacific Islands; or provide evidence from the Immigration and Naturalization Service that they are in the United States

for other than a temporary purpose with the intention of becoming a citizen or permanent resident.

2. Enrolled or accepted for enrollment in the next enrollment period at Purdue University North Central.
3. In need of academic support to successfully pursue a post-secondary education program.
4. Disabled, low income, or first-generation college student.

Validation of eligibility will be required at the time of application to the program. Special Services staff are available to consult with interested students at anytime to determine eligibility.

To apply for Special Services, a student need only contact the Special Services Office located in 104 of the Library-Student-Faculty (LSF) Building. The necessary forms and instructions will be provided to any interested individual.

SITTER SERVICE

The purpose of the Sitter Service is to provide a convenient, high quality child care service for the children of students, faculty, and staff members of Purdue University North Central. The Sitter Service offers a variety of activities for children. Your child will be exploring various activities and interest centers.

The Sitter Service is located in the LSF Building. Children between the ages of 2 and 12, provided they are toilet trained, are eligible to participate in the program. A Sitter Service Fee Card must be purchased at the Bursar's Office.

STUDENT ACTIVITIES/ATHLETICS OFFICE

The Student Activities/Athletics Office provides a variety of extracurricular opportunities for both the younger and the older PNC student. Activities are organized to allow for positive use of leisure time, and to complement the academic activities provided by the University. Student participation in the planning of activities is encouraged.

1. *F.A.C.E. Committee*
   The Fine Arts, Convocations, and Events Committee is active in planning, promoting and coordinating a wide variety of activities which include movies, dances, lectures, and special events.

2. *Student Senate*
   The purpose of the Student Senate is to represent the student body within the University community. It is composed of ten student representatives elected by the student body in the spring of each school year.

3. *Student Organizations*
   A variety of student clubs and organizations are available on campus. A list of these clubs and organizations may be obtained from the Student Activities/Athletics Office. All students are welcome to participate.

4. *Student Newspaper*
   The Student Activities/Athletics staff acts as advisor and consultant to the student newspaper, the Campus Rapport. The newspaper reports campus news, highlights institutional events, and promotes student related programs to encourage involvement of the student body. The paper is published every three weeks during the Fall and Spring sessions. Students who join the newspaper staff will be able to gain valuable journalism experience.

5. *Discount Program*
   All faculty, staff, and students may obtain a discount card in the Counseling Center. These cards entitle the bearer to reduced rates at more than 70 local merchants and are available in late September of each year.

6. *Intramurals*
   A full complement of indoor and outdoor recreational activities are provided for students. Tournaments are co-educational and all students are encouraged to participate. Students may assist in the planning of recreational activities by contacting the Activities/Athletics Director.

7. *Club Sports*
   a. Golf - open to all students. All matches are scheduled during the Fall semester.
   b. Tennis - open to all students. Matches are held in the Spring semester.
   c. Baseball - available to all interested students. Games are scheduled for the Fall semester.
   d. Basketball - Open to all students, the schedule overlaps the Fall and Spring semesters.

ACADEMIC ADVISING OFFICE

Upon admission to the University every student is assigned an academic advisor who is available to provide students with information on policies, procedures, and programs of the University; to assist students in choosing educational and career objectives and to explore the possible short and long-range consequences of choices; and to inform students of the wide range of educational opportunities at the University, pertinent to their objectives.

The Academic Advising Office, located in the Counseling Center, provides a central location for the handling of routine academic questions and for storing and disseminating appropriate academic advisory materials as approved by the academic sections. The Academic Advising Coordinator acts as a liaison with the advisors from each of the academic sections and departments on campus. In addition, the Academic Advising Coordinator is responsible for advising non-degree, no option students; students majoring in Purdue schools not represented by PNC academic sections, and students assigned to the Advising Office by academic sections.

PLACEMENT OFFICE

Purdue University North Central maintains an office to help students and graduates find jobs best suited to their education and interests.

The Placement Office provides occupational information, job opening announcements, and the opportunity to schedule personal interviews with employer representatives who come to the campus to talk with prospective employees.

In addition, the Office serves students and graduates with career planning information and job search assistance.

INSURANCE

Low cost University accident and health insurance similar to the policy offered at the West Lafayette Campus is offered annually to all students carrying an academic load of three hours or more. Students may enroll in this program at the beginning of each semester. A brochure which describes the coverage and contains an application is available in the Bursar's Office.

FEES

Fees are set by the Board of Trustees of Purdue University and are subject to change by the Board without notice.

Course Fees. Purdue University North Central has a fee structure different from that at the West Lafayette Campus. Fees are based on an established amount per credit hour. In addition, a laboratory fee will be charged if the course includes laboratory work. In general, a student will be considered as a resident for tuition purposes if that student has lived in the State of Indiana for at least the twelve months preceding the first day of classes for the semester in which admission is sought. Questions concerning the policy or the classification of an individual student should be addressed to the Registrar.

The following fees were in effect for 1986-87.

	Resident	**Nonresident**
Undergraduate	$47.50 per credit hour plus $16.00 per lab hour	$120.00 per credit hour plus $16.00 per lab hour
Graduate	$62.25 per credit hour plus $16.00 per lab hour	$141.50 per credit hour plus $16.00 per lab hour

NOTE: Students who have received a baccalaureate degree will pay graduate fees except under the following conditions:

1. the student is pursuing an additional baccalaureate degree in a discipline different from that in which a baccalaureate degree is presently held;

2. the student is enrolling in undergraduate courses clearly for personal enrichment or occupational requirements and no intent exists to pursue an advanced degree.

Student Service Fee. All undergraduate students must pay the student service fee of $2.25 per credit hour to a maximum of $20.00. It is not applicable during the summer session. The fee is refundable at the same percentage as class fees.

Late Registration Fees. The charge for late registration is $7.00 per course with a maximum of $35.00. This fee is assessed if the student registers on or after the first day of class. The fee is nonrefundable.

Breakage Fees. Course fees include the cost of normal breakage and wear and tear on equipment. An additional charge will be levied against individuals for excessive waste, loss, or breakage that may occur. Such special charges must be paid before course credit will be given.

Diploma Fees. All students must pay a $10 diploma fee not less than 30 days before the close of the semester in which they expect to complete their work for a degree.

Encumbrance Fee. If a student fails to fulfill any financial obligation to various University departments, that student's records will be encumbered and a fee will be

assessed to the student by the department that issued the encumbrance. Prior to the assessment of the encumbrance fee, the student will be advised in writing of the outstanding financial obligation and will be given a specified time to settle the account prior to the assessment of the fee.

If a student's records are encumbered because of outstanding financial obligation, that student will not be allowed to register for an additional semester at Purdue University, nor will a student's transcript be released until the financial obligation and encumbrance fee are paid.

Refunds. Course fees will be refunded under any one of the following conditions:

Period of Withdrawal	Refund Percentage	
	Semester	Summer Session
First week	100	100
Second week	60	40
Third week	40	0
Fourth week	20	0
Fifth week	0	0

To be eligible for a refund, students must complete the necessary withdrawal forms in the Registrar's Office.

Special Examination Fees. To establish credit by examination, a nondegree student or a student currently enrolled carrying less than 12 credit hours must pay a fee of $25 per course.

Withdrawal. In order to effect a withdrawal from any class, a student must complete a drop card approved by the advisor and submit it to the Registrar's Office. Discontinuance of class attendance is not the basis for withdrawal, and students who do not notify the Registrar's Office when they plan to withdraw will be given a failing grade in each course involved.

GRADING

ASSIGNING OF GRADES

Instructors will assign a grade for each course in which the student is enrolled at the close of a session. The student shall be responsible for the completion of all required work by the time of the last scheduled meeting in the course unless the assignment to the course has been properly cancelled. The grade shall indicate the student's achievement with respect to the objectives of the course.

For Credit Courses:

A — highest passing grade.
B
C
D — lowest passing grade; passing minimal objectives of the course.
E — conditional failure; failure to achieve minimal objectives, but only to such limited extent that credit can be obtained by examination or otherwise without repeating the entire course. This grade represents failure in the course unless and until the record is duly changed within one semester. It cannot be changed to a grade higher than a D.
F — failure to achieve minimal objectives of this course. The student must repeat the course satisfactorily in order to establish credit in it.
P — passing grade for the pass/not pass option; equivalent to grade A, B, or C.
N — not passing for the pass/not pass option. Issued when the student's grade would be a D or F under the letter grade option.

Pass/Not Pass Option. The pass/not pass option provides students with the opportunity to broaden their educational foundations with minimal concern for grades earned. The option is open to all students in the University subject to the regulations of the school in which the student is enrolled. Subject to the regulations of each curriculum, this option may be elected in any course which does not already appear on the student's academic record and in which the student is otherwise eligible to enroll for credit with letter grade. A student may not elect this option for more than 20 percent of the total credit hours required for graduation.

A student who is enrolled in a course under this option has the same obligations as those who are enrolled in the course for credit with letter grade. In reporting final grades in the course, the instructor will report that any such student who would have earned a grade of A, B, or C has passed the course, and that any other such student has not passed.

For Incomplete Work, either credit or noncredit:

I — incomplete; no grade; a temporary record of work which was interrupted by unavoidable absence or other causes beyond a student's control, and which work was passing at the time it was interrupted. An instructor may require the student to secure the recommendation of the Dean of Students that the circumstances warrant a grade of incomplete. The student must achieve a permanent grade in the course no later than the twelfth

week of the second subsequent semester of enrollment, or the I grade will revert to a failing grade.

PI — incomplete, for pass/not pass option. Has the same provisions as the I for letter grade option.

Directed Grades. The Registrar is directed to record the following grades and symbols under special circumstances:

W — withdrew; a record of the fact that a student was enrolled in a course and withdrew or cancelled the course after the second week of the regular semester.

WF — withdrew failing; a record of course cancellation during the fifth to ninth week of the regular semester, at which time, according to a statement from the instructor, the student was not passing. This grade counts in all respects as a failing grade. A grade of WF may be directed by the Committee on Scholastic Delinquency and Re-admissions.

WN — withdrew not passing; the same as WF for a credit course taken under the pass/not pass option except that it does not affect index computations.

IF — unremoved incomplete failing; for a credit course in which a student received an I grade, a directed record of the student's failure to achieve a permanent grade by the 12th week of the second subsequent semester of enrollment. This grade counts in all respects as a failing grade.

IN — unremoved incomplete; not passing for a credit course taken under the pass/not pass option under which the student received a PI grade. The same as an IF grade except that it does not affect index computations.

GOOD STANDING

For purposes of reports and communications to other institutions and agencies and in the absence of any further qualification of the term, a student shall be considered in good standing unless he or she has been dismissed, suspended, or dropped from the University and has not been re-admitted.

SCHOLARSHIP INDEXES

The scholarship standing of all regular students enrolled in programs leading to an undergraduate degree shall be determined by two scholarship indexes, the semester index and the graduation index.

1. The semester index is an average determined by weighting each grade received during a given semester by the number of semester hours of credit in the course.

2. The graduation index is a weighted average of all grades received by a student while enrolled in the curriculum plus all other grades received in courses taken in other curricula offered by the University and properly accepted for satisfying the requirements of the curriculum of the school in which the student is enrolled. With the consent of the appropriate academic advisor, a student may repeat a course. In the case of courses which have been repeated, or in which conditional grades have been removed by examination, or for which a substantially equivalent course has been substituted, the most recent grade received shall be used.

3. For the purpose of averaging, each grade shall be weighted in the following manner:

A—6 x semester hours = index points
B—5 x semester hours = index points
C—4 x semester hours = index points
D—3 x semester hours = index points
E,F,WF,IF—2 x semester hours = index points
P,N,I,PI,W,WN,IN not included

REQUIREMENTS FOR DEGREES

A. Associate Degree

To gain an associate degree from Purdue University, a student shall satisfy the following requirements:

1. The completion, either by Purdue course work, as directed credit, or by credit accepted from another institution, of the plan of study underlying the degree. Deans of schools may refuse to accept as credit toward graduation any course which was completed ten or more years previously. Former students shall be notified immediately of all such decisions upon reentering. Subtractions of courses required for graduation may be made by the dean of the school conferring the degree.

2. Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of course work required and approved for the completion of the degree. Students are normally expected to complete the entire second year in residence; however, with the approval of the dean of the school concerned, students who have at least three semesters of resident study may complete not to exceed 16 semester hours of the second year, in another approved college or university. For the purpose of this rule, two summer sessions may be considered as equivalent to one semester.

3. Registration, either in residence or in absentia, as a candidate for the desired degree during the semester (summer session) immediately preceding its conferment.

4. A minimum graduation index of 3.90 shall be required for graduation. A student who has completed all other requirements for an associate degree, but has failed to meet the quality requirements may register for additional courses with the approval of an authorized representative of the dean of the school after a review of the student's record. The additional courses which the student may take after meeting all quantity requirements shall not exceed ten credit hours. Credit in these additional courses must be established within three years of the date on which all degree requirements except the minimum graduation index were met. The student will be considered as having met the quality requirement for graduation if the student's graduation index, including the above extra courses, meets the quality standard in effect at the time when all other graduation requirements were satisfied.

5. The payment of the graduation fee to the bursar on such date as may be specified preceding the end of the session.

B. Baccalaureate Degree

To gain a baccalaureate degree from Purdue University, a student shall satisfy the following requirements:

1. The completion, either by resident course work, as directed credit, or by credit accepted from another institution, of the plan of study underlying the degree. Deans of schools may refuse to accept as credit toward graduation any course which was completed ten or more years previously. Former students shall be notified immediately of all such decisions upon reentering. Substitutions of courses required for graduation may be made by the dean of the school conferring the degree.

2. Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of course work required and approved for the completion of the degree. These courses are expected to be at least junior level courses.

   Students are normally expected to complete the senior year in residence; however, with the approval of the dean of the school concerned, a student who has had four semesters of resident study may complete the last year or a portion of it at another college or university, provided that the number of semester hours of credit to be taken does not exceed 25 percent of the total hours required for the degree. The foregoing stipulations do not apply to students who earn credit elsewhere through a contract or arrangement entered into by the University or one of its academic units.

3. Registration, either in residence or absentia, as a candidate for the desired degree during the semester (or summer session) immediately preceding its conferment.

4. A minimum graduation index of 4.00 shall be required for graduation. Some teacher education programs require minimum indexes higher than 4.00.

5. The payment of the graduation fee to the bursar on such date as may be specified preceding the end of the session.

C. Advanced Degrees

Requirements for the several master's degrees, for the Educational Specialist, and for Doctor of Philosophy degrees are established by the Graduate Council and are stated in the Graduate School Bulletin and the regulations of the Graduate School. In general, these requirements include the following:

1. The filing of an appropriate plan of study for the advanced degree, and the approval of that plan by the department or school head, the school dean, and the dean of the Graduate School.

2. The demonstration of proficiency to English prior to filing the plan of study.

3. The completion of a substantial portion of the plan in residence, as described in the bulletin. Course credits earned by a student whose graduate study has been inactive for five years or more are normally excluded.

4. The completion of a thesis for all doctoral degrees and for thesis-option master's degrees.

5. The payment of the graduation fee to the bursar on such date as may be specified preceding the end of the session.

D. Multiple Degrees

Upon special request approved by the deans of the schools concerned and filed with the Registrar at the beginning of the final semester (or summer session), a student may be registered as a candidate for more than one baccalaureate degree.

E. Meeting Degree Requirements

Specific deadlines for the various requirements for graduate degrees are outlined in the Graduate School Bulletin and must be met as specified. All degree requirements for undergraduate and professional degrees are to be met as of the end of the academic session in which the degree is to be conferred. In the event that academic requirements for an undergraduate or professional degree have not been met as of the end of the session, the candidate's school may grant an extension of time, not to exceed 30 calendar days following the end of the session, for these requirements to be completed in order for the degree to be conferred for that session. Academic requirements which have not been completed, as of the end of the 30-day period, shall disqualify the student from receiving the degree in the intended session and shall delay the conferring of the degree until the end of the next session in which the student is duly registered and all degree requirements have been completed.

SCHOLASTIC PROBATION

Scholastic probation applies only to degree seeking students. Earning a semester or graduation index equal to or less than the appropriate figure shown in the accompanying Table A will result in the degree seeking student being placed on probation. A student on probation shall be removed from that status at the end of the first subsequent regular semester in which the graduation index equals or exceeds the appropriate table entry. A grade change due to correction of an error in reporting grades will result in immediate reconsideration of probation status.

While scholastic probation does not apply to non-degree students, such students are required to achieve the academic standing required of regular students in order to be permitted to continue in attendance.

TABLE A. INDEX LEVELS FOR PROBATION

S = Semester Index; G = Graduation Index

Classification	S	G
1	3.5	3.5
2	3.5	3.5
3	3.6	3.75
4	3.6	3.90
5	3.7	3.95
6	3.7	4.0
7	3.7	4.0
8 and up	3.7	4.0

DROPPING OF STUDENTS FOR SCHOLASTIC DEFICIENCY

A student on scholastic probation shall be dropped from the University if at the close of any semester in which the semester or graduation index is less than that required in Table B. This rule shall not apply for the semester in which the student completes all requirements for a degree. A student dropped by this rule and later duly re-admitted as a regular student shall be re-admitted on probation.

Applications for re-admission to the University from students who have been dropped for academic reasons must be accompanied by a check or money order, not cash, for $50 made payable to Purdue University. Processing of the application will not begin until the fee is paid. Applications may be obtained from the Registrar's Office.

TABLE B. INDEX LEVELS FOR DROPPING

S = Semester Index; G = Graduation Index

Classification	S	G
1†	3.2	3.2
2	3.3	3.3
3	3.4	3.5
4	3.4	3.6
5	3.5	3.7
6	3.5	3.8
7	3.5	3.85
8 and up	3.5	3.9

HONORS LIST

Undergraduate students, carrying at least 12 semester hours who successfully complete all their courses with a grade of C or higher and obtain a semester scholarship index of 5.50 or better, will be designated as members of the honors list for that semester.

DEGREES WITH DISTINCTION

Degrees are awarded at the end of each semester and summer session to candidates who have completed the requirements of their schools. At each of these periods, degrees with distinction are awarded to those completing the undergraduate plans of study under the following general University rules:

1. A candidate for the baccalaureate with distinction must have earned at least 65 hours of credit at Purdue. A candidate for an associate degree with distinction must have earned at least 35 hours of credit at Purdue. To qualify for distinction, the student's graduation index for all work completed must be at least 5.30.

2. The minimum graduation index for graduation with distinction in each school shall be no less than the ninetieth percentile of the graduation indexes of the graduates in each school, for the spring semester, provided that the index is at least 5.30. The minimum graduation index so determined in the spring for each school shall be applied for graduation with distinction for the subsequent summer session and fall semester.

† Affects only students entering on probation.

3. Of those graduates who qualify for distinction under these rules for the spring semester, the three-tenths of the baccalaureate graduates having the highest graduation indexes shall be designated as graduating with highest distinction, irrespective of the schools from which they graduate. The three-tenths of the spring associate degree graduates having the highest graduation indexes will be designated as graduating with highest distinction.

   The minimum graduation indexes so determined for graduation with highest distinction shall be applied for graduation with highest distinction for the subsequent summer session and fall semester.

PLANS OF STUDY

A summary of offerings at Purdue University North Central is described under PROGRAMS on page 9. The following sections present first those programs which can be completed at the North Central Campus which includes the Associate Degree programs, the B.S. in Supervision, the Bachelor of Liberal Studies, the B.A. in Elementary Education, and selected graduate offerings. The sections then continue with those programs which are essentially transfer programs. Students may initiate, at Purdue University North Central, study in almost any area offered on any campus of Purdue University or other major American university. The transfer program section usually outlines the first two years of work appropriate for transfer to one of the academic units on another university campus. Programs especially tailored to meet the requirements of other universities will usually be constructed so that students may take up to two years of work at the North Central Campus.

ABBREVIATIONS

The following abbreviations of subject fields are common to all Purdue University Bulletins concerned with academic programs. They are used in the plans of study and descriptions of courses sections of this bulletin.

A&AE	Aeronautics and Astronautics	CHM	Chemistry	F&N	Foods and Nutrition
A&D	Art and Design	CHT	Chemical Technology	FOR	Forestry and Conservation
AGEN	Agricultural Engineering	CIMT	Computer Integrated Manufacturing Technology	FR	French
AGEC	Agricultural Economics			GEOS	Geosciences
AGR	Agriculture	CPT	Computer Technology	GER	German
AGRY	Agronomy	CS	Computer Sciences	GNC	Community College-Bridge
ANSC	Animal Science	C&T	Clothing and Textiles		
ANTH	Anthropology	COM	Communication	GBA, GBG, GBM	Community College-Business
ART	Architectural Technology	ECON	Economics		
AUS	Speech Pathology and Audiology	ED	Education		
		EE	Electrical Engineering	GNT	General Studies Technology
BC	Building Construction and Contracting	EET	Electrical Engineering Technology	HIST	History
				HLS	Liberal Studies
BCHM	Biochemistry	ENGL	English	HORT	Horticulture
BIOL	Biological Sciences	ENGR	Engineering	IAT	Industrial Arts Teaching
CE	Civil Engineering	ESC	Engineering Sciences		
CET	Civil Engineering Technology			IDE	Interdisciplinary Engineering
				IDIS	Interdisciplinary Studies
CHE	Chemical Engineering			IE	Industrial Engineering

ABBREVIATIONS (Continued)

IET	Industrial Engineering Technology
IT	Industrial Technology
LS	Land Surveying
MA	Mathematics
ME	Mechanical Engineering
MET	Mechanical Engineering Technology
MGMT	Management
MSE	Materials Engineering
MUS	Music
NUR	Nursing Technology
PCTX	Pharmacology
PEM	Physical Education for Men
PEW	Physical Education for Women
PHAR	Pharmacy
PHIL	Philosophy
PHYS	Physics
PLSH	Polish
POL	Political Science
PSY	Psychology
RHI	Restaurant, Hotel, and Institutional Management
RUSS	Russian
SOC	Sociology
SPAN	Spanish
SPV	Supervision
STAT	Statics
SWRK	Social Work
TG	Technical Graphics

BACHELOR DEGREE PROGRAMS

BACHELOR OF ARTS IN ELEMENTARY EDUCATION

Purdue University North Central offers a program for students preparing to teach in the elementary schools. This program is developed in accordance with regulations promulgated by the Indiana Board of Education. Detailed descriptions of the teacher education program in elementary education and its purposes are available through academic advisors, and from the Office of Teacher Education in West Lafayette. In order to become certified in Indiana, teachers must pass a competency test. A teacher completing standard certification in elementary education is eligible to teach all subjects in grades 1-6 and non-departmentalized grades 7 and 8. The curriculum includes liberal arts or general education courses, and professional education coursework. The Student Teaching component of the professional semester can be completed in area elementary schools under the supervision of a Purdue University North Central staff member.

Students who wish to major in elementary education should seek admission to the School of Humanities, Social Science and Education at Purdue University North Central. Following completion of 28 hours of course work, the student must apply for admission to Teacher Education and maintain a graduation index of 4.5.

A minimum of 131 credit hours is required for the Bachelor of Arts in Elementary Education degree. The four year curriculum is detailed below.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	BIOL 205 (Biology for Elementary School Teachers)	(3)	BIOL 206 (Biology for Elementary School Teachers)
(4)	MA 133 (Mathematics for Elementary Teachers I)	(4)	MA 134 (Mathematics for Elementary Teachers II)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	Foreign Language 101	(3)	Foreign Language 102
(3)	HIST 151, 152, or 367	(3)	HIST 104 (Introduction to the Modern World)
(16)		(16)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	PHYS 210 (The Nature of Physical Science I)	(3)	Science
(3)	PSY 120 (Elementary Psychology)	(3)	AUS 210 (Introduction to Communicative Disorders)
(3)	Foreign Language 203	(3)	F&N 303 (Essentials of Nutrition)
(3)	Social Science	(3)	COM 114 (Fundamentals of Speech Communication)
(2)	ED 249 (Introduction to Elementary and/or Secondary Education)	(3)	Social Science
(3)	ENGL 227 (Elements of Linguistics)	(3)	ED 285 (Educational Psychology)
(17)		(18)	

JUNIOR YEAR

Fifth Semester

(3) ED 326 (Teaching Reading in the Elementary School)
(2) ED 385 (Child Behavior in the Elementary School)
(4) A & D 201 (Art for Elementary School Teachers)
(3) A & D 255 or elective
(3) Elective

(15)

Sixth Semester

(3) ED 324 (Music for Elementary School Teachers)
(3) ED 327 (Corrective Reading for the Classroom Teacher)
(3) ENGL 266 or 267
(3) Science
(3) MUS 250 or elective

(15)

SENIOR YEAR

Seventh Semester

(3) ED 320 (Teaching the Language Arts in the Elementary School)
(3) ED 321 (Teaching Mathematics in the Elementary School)
(3) ED 380 (Media for Children)
(3) Elective
(3) Elective
(3) Elective

(18)

Eighth Semester

(3) ED 322 (Teaching Social Studies in the Elementary School)
(3) ED 323 (Teaching Science in the Elementary School Curriculum)
(3) ED 480 (Social and Philosophical Foundations of Education)
(9) ED 424 (Supervised Teaching)

(18)

BACHELOR OF SCIENCE DEGREE FOR ASSOCIATE DEGREE TECHNICIANS

The Bachelor of Science (B.S.) degree awarded under the School of Technology's "2 + 2" education plan is unique. A student who follows this plan earns first the associate degree in two years and then a B.S. degree in two more years.

A student is awarded an associate degree upon successful completion of the two-year program. The associate degree signifies that the recipient is educated at that level and is job-ready. Thus, individuals may go directly into well-paying jobs or may elect to continue study.

A student who desires to continue with a formal education may be admitted to one of several baccalaureate programs. Upon successfully completing this program, a B.S. degree is awarded. This provides the background for increased job responsibility.

The baccalaureate program provides the general education which permits the graduate to engage in a significantly broader span of activities. It provides a very important background in interdisciplinary studies and creates a greater potential for the graduate. It also enables the graduate to do additional work in a particular area of specialization.

BACHELOR OF SCIENCE DEGREE IN MECHANICAL ENGINEERING TECHNOLOGY

Mechanical engineering technology concerns the generation, transmission, and utilization of mechanical and fluid energy and the design and production of tools, machines, and their products.

Graduates of the two-year mechanical engineering technology program which is described beginning on page 64 are eligible to enter into this two-year capstone curriculum. The B.S. program prepares graduates for technical positions in manufacturing and production industries. Technologists fill a wide variety of industrial positions in manufacturing, production, supervision, plant operations, and product development.

The primary goal of the curriculum is to provide all graduates with a solid technical foundation which will enable them to adapt readily to a wide variety of employment opportunities.

JUNIOR YEAR

Fifth Semester

(3) ECON 210 (Principles of Economics)
(3) EET 214 (Electricity Fundamentals)
(3) MA 223 (Introductory Analysis I)
(3) MET 320 (Applied Thermodynamics)
(3) CHEM 111 (General Chemistry)
(3) Supervision or Management Elective

(18)

Sixth Semester

(3) COM 315 (Speech Communication of Technical Information)
(3) MET 341 (Applied Metallurgy)
(3) SPV 374 (Supervisory Management)
(3) STAT 301 (Elementary Statistical Methods)
(3) MET 313 (Applied Fluid Mechanics)
(3) Free Elective

(18)

SENIOR YEAR

Seventh Semester

(3) COM 415 (Discussion of Technical Problems)
(3) IET 451 (Monetary Analysis for Industrial Decisions)
(3) Interdisciplinary or Basic Science Elective
(6) Mechanical Engineering Technology Electives

(15)

Eighth Semester

(3) ENGL 421 (Technical Writing: Engineering and Science Applications)
(3) Humanities or Social Science Elective
(6) Mechanical Engineering Technology Electives
(3) Interdisciplinary or Basic Science Elective

(15)

BACHELOR OF SCIENCE DEGREE IN SUPERVISION

The baccalaureate program in Supervision was designed with the active assistance of industry and was instituted to fill the needs for further education for the following: those who have completed one of the associate degree programs; those who are already employed and who desire courses or programs to advance their knowledge and skills in the field of supervision; those students majoring in fields which have limited job opportunities and who desire academic work in supervision to make them

more employable; and bachelor degree graduates from programs with limited career opportunities who want to become more employable by developing their expertise in technical fields. A 4.25 G.P.A. is required to transfer into this program.

This program is designed to prepare students for careers in supervisory management, personnel work, and employee training and development. These careers are found in such organizations as businesses, educational institutions, government agencies, hospitals and industrial firms. Supervision graduates are employed in these organizations in positions such as supervision, personnel, training and development, accounting, customer service, field engineering, plant engineering, production control, production engineering, process engineering, programming, project engineering, purchasing, quality control, sales and technical writing.

A cooperative education program in Supervision is available. This program is designed to combine University study and work-learning experience. The co-op work-learning experience is directly related to the plan of study the student is following on campus, and it is obtained in an employing organization in either business, industry, or government. A rotational schedule (i.e., alternating semesters between the campus and the employing organization) provides the co-op student with a blend of earning, learning and practical work experience. This approach makes both the classroom study and the work-learning experience more meaningful.

Supervision Plan of Study

REQUIRED COURSES

SPV	100	(Supervision Lectures)	(1)
SPV	240	(Labor Relations Problems)	(3)
SPV	252	(Human Relations in Supervision)	(3)
SPV	374	(Supervisory Management)	(3)
SPV	375	(Basic Methods of Training for Supervisors)	(3)
SPV	376	(Supervision and Personnel Problems)	(3)
SPV	431	(Occupational Safety and Health)	(3)
SPV	462	(Supervised Work Experience)	(3)
SPV	474	(Conference Leadership Training)	(4)
SPV	574	(Managerial Training and Development)	(3)
SPV	577	(Organization and Administration of Training and Development)	
		or	
SPV	590	(Individual Research Problems in Supervision and Personnel)	(3)
		Total hours	(32)

OTHER REQUIRED COURSES

COM	114	(Fundamentals of Speech Communication)	(3)
COM	315	(Speech Communication of Technical Information)	
		or	
COM	415	(Discussion of Technical Problems)	(3)
CS	110	(Introduction to Computers)	
		or	
CS	140	(Introduction to Data Processing BASIC)	
		or	

CS	220	(Programming I for Engineers and Scientists)	
		or	
GBA	235	(Data Processing in Business)	(3)
ECON	210	(Principles of Economics)	(3)
TG	110	(Drafting Fundamentals)	(3)
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II)	(3)
ENGL	420	(Business Writing)	
		or	
GNT	220	(Technical Report Writing)	(3)
IET	104	(Industrial Organization)	(3)
IET	250	(Fundamentals of Production Cost Analysis)	(3)
IET	266	(Work Measurement and Incentives)	(3)
MA	147	(Algebra and Trigonometry for Technology I)	(3)
MA	148	(Algebra and Trigonometry for Technology II)	(3)
MGMT	200	(Introductory Accounting)	(3)
STAT	301	(Elementary Statistical Methods I)	(3)
		Total hours	(45)

ELECTIVES

Science selectives from Physics/Chemistry†	(6-8)
Technical electives††	(27)
General education electives†††	(14-17)
Total hours	(49-50)

† Science selectives from one of the following options:

PHYS 218 & 219	(General Physics)	(8)
PHYS 210	(The Nature of Physical Science I)	(3)
CHM 111 & 112	(General Chemistry)	(6)
CHM 111 & PHYS 218	(General Chemistry & Physics)	(7)

†† Courses selected as technical electives must be part of an integrated plan with two and three course sequences, and must contain material of a more advanced nature than that presented in a required, approved substitute or a previously taken selective course.

Courses from the following Schools are acceptable as approved by your academic advisor:

Agriculture
Community College (GBA Only)
Engineering
Management (ECON & MGMT)
Science
Technology (particulary IET, MET, EET, CPT, CET, ART or BC)

††† Courses should contain material of a more advanced nature than that presented in a required or approved substitute course. Exceptions may be allowed for those students who enter the B.S. Supervision Program with associate degrees from other recognized Purdue programs with the consent of the department head.

BACHELOR OF SCIENCE DEGREE IN SUPERVISION
(Architectural, Construction, or Civil Engineering Technology Emphasis)

This baccalaureate program is open to students with an associate degree in architectural technology, building construction and contracting, or civil engineering technology or their equivalents. It emphasizes the principles and practices of construction and the basics of management. Technical electives permit students to orient their program toward a specific segment of the construction industry.

Graduates of the program find employment with contractors, architects, engineers, building materials companies, utilities, and governmental agencies. Their work may be in the field or in an office. Many graduates will ultimately become owners or managers of construction firms.

This curriculum prepares students as professional constructors, but not for registration as professional architects or engineers.

An appropriate plan of study for the bachelor of science degree in supervision (Architectural, Construction, or Civil Emphasis) can be obtained from School of Technology advisors.

BACHELOR OF SCIENCE DEGREE IN SUPERVISION
(Industrial Engineering Technology Emphasis)

This major field of specialization is designed to develop technologists to support the problem-solving and decision-making functions in management and to prepare for planning and control, work method analysis, work measurements, robotics, CNC systems, quality assurance and controls, and systems and procedures analysis. Practical applications of production-oriented operations, research techniques, data processing, and computer programming fundamentals are stressed.

The industrial engineering technologist is often initially employed in the time study, quality control, production control, or plant layout department. With increased experience the student may advance within the department, directly assisting a professional industrial engineer, or may become a production supervisor. This broad technical background, together with the human relations background and proficiency in engineering methods and mathematics, enables the industrial engineering technologist to take advantage of opportunities for advancement in many directions.

An appropriate plan of study for the bachelor of science degree in supervision (Industrial Engineering Emphasis) can be obtained from School of Technology advisors.

BACHELOR OF LIBERAL STUDIES DEGREE

The Liberal Studies baccalaureate program was designed by the faculty of Purdue University North Central to meet the educational needs of those students who desire a broad exposure to the humanities, social sciences, physical sciences, mathematics, and technology. The four-year Liberal Studies program is offered at the North Central Campus in conjunction with the Humanities, Social Sciences and Education School of Purdue University at West Lafayette.

Each student will follow a course of study, appropriately approved by an advisor, which will provide a primary and secondary area of study (concentrations) specifically

designed to meet the needs and career goals of the individual. The large number of electives enable the student to pursue areas of personal interest.

In addition, the Liberal Studies program is designed to permit individuals who have earned credits at other colleges, or in other programs, or who have earned an associate degree, to incorporate previously earned credits into a four-year program which can be completed at Purdue University North Central.

The core requirements of the Bachelor of Liberal Studies (BLS) degree program are as follows:

	Hours
Composition - ENGL 101 plus either ENGL 102, GNT 220, or ENGL 420	6
Great Issues	6
Mathematics†	5
Natural Science†	6
Social Science	6
Humanities	6
Communications	3
	38

An additional 12 hours of concept development which may be in either of the following:

Foreign Languages
Statistics and Computers

12

The primary area of study is established with a minimum of 30 hours (ordinarily distributed among three or more departments) taken beyond the core. The primary area of study must be agreed upon by the student and the academic advisor.

30

The primary areas of study include but are not limited to the examples given below.

Humanities:
Creative Arts, Foreign Languages and Literature, Literature, Philosophy
Social and Behavioral Science:
Economics, History, Political Science, Psychology, Sociology
Natural Science and Mathematics:
Biology, Chemistry, Mathematics, Physics

The primary area may also be chosen from various Technology and Interdisciplinary areas.

A minimum of 21 hours must be taken beyond the core in a secondary area of study.

21

† In Mathematics and Natural Science, a combination of two courses may total more than the hours indicated. These surplus hours may be counted as electives.

Electives	25
TOTAL HOURS REQUIRED FOR THE BLS DEGREE PROGRAM	126

Other requirements and limitations:

A minimum of 30 hours must be taken at the 300 level or above.

A minimum of 30 credit hours must be taken at Purdue University North Central.

A minimum of 32 credit hours must be taken at Purdue University at the junior level or above.

A maximum of 6 courses from any one department may be counted toward the fulfillment of the degree requirement. (In exceptional cases the Liberal Studies Academic Advisory Committee, instituted to oversee the entire Bachelor of Liberal Studies degree program, may extend this maximum course allowance by one course.)

ASSOCIATE DEGREE PROGRAMS

ASSOCIATE OF ARTS DEGREE IN GENERAL BUSINESS

The primary thrust of the associate degree program in general business is to provide students with above entry level skills in a variety of business activities upon the completion of two years of full-time study. The program is designed to prepare students for employment in the areas of sales, distribution, marketing, accounting, or office supervision. It features a strong core of general business courses with majors provided so that the students who are interested in specialized areas can pursue their goals. For example, a student who is interested in accounting will take courses required for a general understanding of business plus specialized courses in accounting under the accounting major in this program. The student is allowed to take twenty-five percent of the degree requirements as electives so that interests in other fields may be pursued. This design allows maximum flexibility for the student. It also provides a broad sampling of courses in general business making it ideal for those students who have not decided on a specialty and want to explore this area as a career.

Students who earn the associate degree in business and otherwise meet the entrance requirements may continue their work toward a baccalaureate degree by transferring to the supervision program or the liberal studies program at Purdue University North Central.

I.	**REQUIRED COURSES (30 credit hours)**	**Credit Hours**
	GBG 127 (Introduction to Business)	3
	MA 110 (Business Math), STAT 114 (Elements of Probability and Statistics)	6
	ENGL 101, (English Composition I) **and** ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)	6
	GBG 126 (Personal Finance)	3
	SPV 374 (Supervisory Management)	3
	GBG 260 (Business Law)	3
	GBG 235 (Data Processing in Business)	3
	COM 114 (Fundamentals of Speech Communication)	3
		30
II.	**MAJORS (15 credit hours)**	
	A. Accounting (15 credit hours)	
	GBA 227, 228 (Principles of Accounting I and II)	6
	GBA 230 (Cost Accounting)	3
	GBA 240, 241 (Intermediate Accounting I and II)	6
	or	
	B. Marketing (15 credit hours)	
	GBM 129 (Principles of Marketing)	3
	GBM 288 (Principles of Retailing)	3
	GBM 289 (Marketing Seminar)	3
	GBM 280 (Selling: Principles and Practices)	3

GBM 281 (Principles of Advertising)	3
or	
C. General Business (15 credit hours)	
GBG 250 (Principles of Business Budgeting)	3
GBM 129 (Principles of Marketing)	3
SPV 376 (Supervision and Personnel Problems)	3
SPV 252 (Human Relations in Supervision)	3
GBG 224 (Administrative Office Procedures)	3
	15

III. ELECTIVES (15 credit hours required)

A. Electives

GBA 270 (Principles of Tax Preparation)
GBG 270 (Ownership and Operation of Small Business)
GBA 371 (Advanced Accounting)
GBA 372 (Auditing)
GBA 375 (Governmental Accounting)
GBA, GBG, GBM 290 (Independent Study—Business)

B. Any courses in Group II above not required by student's major.

C. Any courses from general university offerings commensurate with student's abilities and interests after consultation with an academic advisor. 15

Total Credit Hours 60

ASSOCIATE OF APPLIED SCIENCE DEGREE IN NURSING

The associate degree nursing program prepares men and women for careers in nursing. Upon successful completion of the two year program, an Associate in Applied Science (A.A.S.) degree is granted. Graduates must have a minimum grade average of 4.0 to take the State Board Test Pool Examination to earn licensure as registered nurses in Indiana.

PHILOSOPHY

Each person is a unique individual with basic human needs who responds to their environment as a unified whole. The human needs of the individual are defined in terms of developmental processes through the life span and are met based on the person's ability to cope with internal and external environmental factors. Each person, as a rational, sentient being, has the right to participate in decisions which affect that person's health.

Society is an open system composed of numerous subsystems. People interact in social systems and subsystems to meet individual needs and to adapt to their internal and external environment. Through these interactions, the individual influences and is influenced by society.

The unifying concept of health incorporates the human needs and developmental processes of the individual. Health reflects the greater capacity for adaptation and constitutes a state of optimal functioning on the health-illness continuum.

The practice discipline of nursing assists the person or a society in the promotion of optimal health and provides health teaching in response to the health needs of all persons. The nursing process is central to the concept of nursing practice and has as its inherent goal the maintenance and fulfillment of the human needs of persons as holistic beings.

The educational process is a conjoint effort of faculty and students that fosters continued self-directed learning, personal and professional growth. Nursing Education is a systematic process based upon knowledge drawn from the social and natural sciences, arts, and nursing which form the framework of nursing practice. At the associate degree level, graduates are prepared to give direct care to individuals with common and recurring health needs within a structured setting.

The teaching/learning process progresses from simple to complex concepts and from functional to dysfunctional systems. The active process of learning occurs in three domains: cognitive, affective, and psychomotor which can be inferred from changes in behavior. Learning is facilitated by encouraging creativity, reinforcing desired behavior, recognizing individual differences, and utilizing a multisensory approach.

ADMISSION CRITERIA FOR ASSOCIATE DEGREE PROGRAM

The number of places in the Purdue University North Central Nursing program is limited and application does not insure admission. For further information concerning admissions criteria, please refer to page 10.

HEALTH EXAMINATION

To protect the health of students in nursing, health examinations and specific immunizations are required. Health and immunization forms will be given to entering students and must be returned and on file in the Nursing Department prior to beginning the clinical nursing courses and annually until graduation.

LIABILITY INSURANCE

Students are required to participate in a student liability insurance program. Liability insurance plans designed especially for nursing students are available.

TRANSFER STUDENTS

Students transferring from another college or university must comply with the following admissions procedures:

1. Submit an official undergraduate application for admission through the director of guidance of the high school from which the student graduated.
2. Forward official transcripts of work done in institutions previously attended (both high school and college). A separate transcript must be sent directly from each institution, regardless of whether credit is requested.

3. A student transferring from another college, university, or Purdue campus may be admitted to the nursing program based on past academic performance and other relevant data. Criteria will be applied in a manner consistent with Nursing Section policies in effect at the time the application is submitted.
4. Transfer applications from students who have completed a nursing course or courses at another institution will be considered on an individual basis. Qualified students will be admitted as space is available in the required nursing course(s). For further information, contact the Nursing Section Chairperson.

To be eligible for consideration, students must meet the academic and subject-matter requirements and be in good academic and disciplinary standing at the college (colleges) previously attended.

LPN CREDIT BY EXAMINATION

This examination is offered to Licensed Practical Nurses (LPN) wishing to enter into the associate degree program in nursing at Purdue University North Central.

To enter into the Nursing program and subsequently participate in the Credit by Examination program at Purdue University North Central, nurses must first meet the admission requirements of the Nursing program as well as the general University admission requirements and must possess an active LPN license.

Credit by examination is limited to the following two nursing courses:

NUR 115 Introduction to Nursing	*6 cr.*
NUR 116 Nursing of Adults and Children I	*6 cr.*

The following requirements must be satisfied in order to receive credit by examination in either of the nursing courses listed above:

1. Score 85% or better on two faculty developed multiple choice tests.
2. Submit one acceptable written care plan. The evaluator selects the client's need for the care plan. Students may resubmit the care plan until it is acceptable.
3. Achieve 100% on a faculty developed basic drug administration test.
4. Perform satisfactorily in a simulated clinical situation in the Nursing Resource Center. The evaluation of the student will be based upon satisfactory performance of skills utilized in the clinical evaluation tool. (Critical requirements must be demonstrated correctly in order to pass the simulated clinical component.)

CLINICAL LABORATORY

Clinical experiences are assigned in various health agencies in LaPorte, Porter, and Lake Counties. Students must provide their own transportation.

ADMISSION WITH ADVANCED STANDING

On the basis of CEEB advanced placement examination results, Purdue advanced credit examination results, or high school record, a student may receive advanced credit and/or advanced placement.

Licensed practical nurses are eligible for advanced standing on the basis of their previous education. To receive advanced standing, individuals must be matriculated at Purdue University and successfully complete challenge examinations according to the current school challenge policy.

TRANSFER (OR ADVANCED) CREDIT

Credit for courses at Purdue University will be given for work of equivalent character and amount successfully completed at another accredited college. Advance standing will be determined on the basis of these credits. Advanced credit will be regarded as provisional and may be withdrawn by the Director of Admissions and Placement upon recommendation of the department concerned if dependent work is not satisfactorily completed.

When credit earned at another college or university is transferred to Purdue and accepted toward advanced standing, the credit is converted into terms of Purdue courses and applied to the program of study. It does not follow that the student's classification in the University or the time necessary for completion of the required work for a degree will be in line with that which was expected at the previous institution. Grades are not transferred; only credit in the course is recorded.

Credit will not be granted for nursing courses over five years in age.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	BIOL 203 (Human Anatomy and Physiology)	(3)	BIOL 204 (Human Anatomy and Physiology)
(3)	CHM 119 (General Chemistry)	(4)	BIOL 221 (Introduction to Microbiology)
(3)	PSY 120 (Elementary Psychology)	(3)	ENGL 101 (English Composition I)
(6)	NUR 115 (Introduction to Nursing)	(3)	PCTX 201 (Pharmacology)
		(6)	NUR 116 (Nursing of Adults and Children I)
(15)		(19)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(10)	NUR 224 (Nursing of Adults and Children II) or NUR 240 and NUR 225	(5)	NUR 225 (Maternal Child Health Nursing)
(3)	NUR 280 (Issues in Nursing)	(5)	NUR 240 (Psychiatric Mental Health Nursing) or NUR 224 and NUR 280
(3)	SOC 100 (Introductory Sociology)	(3)	F&N 303 (Essentials of Nutrition)
		(3)	Elective
(16)		(16)	

ADDITIONAL INFORMATION

In addition to the University scholastic requirements, the Nursing program requires that any student earning a "D" or "F" grade in a nursing, science or pharmacology course must repeat that course satisfactorily before progressing in the nursing sequence and/or graduating.

Failure in any required nursing course in the associate degree nursing curriculum will result in the student being dropped from the nursing program. In order to progress in the nursing sequence, the student must make application for re-entry into nursing. Re-entry decisions will be based on the student's academic record and other relevant data.

Nursing courses are taken in sequence.

Purdue University North Central and Valparaiso University have joined in a cooperative program funded under Indiana's new Public/Private Partnership in Higher Education Act. Under the program, registered nurses who have an Associate of Science in Nursing degree from Purdue University North Central and who have been admitted to the baccalaureate degree program in nursing at Valparaiso University will be able to earn a Bachelor of Science in Nursing degree from Valparaiso University while paying the fees normally charged by Purdue University North Central. The cost difference in fees is subsidized by the State of Indiana through the new Public/Private Partnership in Higher Education Act. Students interested in the program may contact the Valparaiso University Office of Admissions. Information may also be obtained from the Purdue University North Central Office of Admissions.

The Bachelor of Science degree in Nursing is also available at the West Lafayette, Calumet and Fort Wayne Campuses of Purdue University.

The faculty reserves the right to update the nursing curriculum with notices and publications.

ASSOCIATE IN APPLIED SCIENCE DEGREE IN FOOD SERVICE AND LODGING SUPERVISION

To prepare students for a career in the hospitality industry, the North Central Campus offers an associate degree program in Food Service and Lodging Supervision. The program is designed to prepare individuals for middle management positions in the hospitality industry. Graduates of this program assume responsibility for providing services in a multitude of situations where people eat or live away from home.

Graduates of the program who wish to complete a baccalaureate degree can enroll in the Bachelor of Liberal Studies or Bachelor of Science in Supervision programs at Purdue University North Central or can transfer to the West Lafayette Campus and enroll in any one of several four-year options in the Department of Restaurant, Hotel, and Institutional Management.

FRESHMAN YEAR

First Semester

(3) ENGL101 (English Composition I)
(3) MA 111(Algebra) or
MA 153 (Algebra and Trigonometry I)
(3) ECON 210 (Principles of Economics)
(3) F&N 203 (Food: Their Selection and Preparation)
(1) RHI 135 (Introduction to Food Service and Lodging Industry)
(3) PSY 120 (Elementary Psychology)

(16)

Second Semester

(3) ENGL 102 (English Composition II)
(3) COM 114 (Fundamentals of Speech Communication)
(3) MGMT 200 (Introductory Accounting)
(3) F&N 303 (Essentials of Nutrition)
(3) RHI 210 (Food Service Sanitation)
(3) RHI 320 (Restaurant, Hotel, and Institutional Property Management)

(18)

SOPHOMORE YEAR

Third Semester

(3) ENGL 420 (Business Writing)
(2) RHI 337 (Quantity Food Production)
(2) RHI 337L (Quantity Food Production Laboratory)
(3) RHI 342 (Personnel Management for Restaurant, Hotels and Institutions)
(3) RHI 440 (Purchasing for Restaurants, Hotels, and Institutions)
(3) SPV 252 (Human Relations in Industry)
(3) SOC 100 (Introductory Sociology)

(19)

Fourth Semester

(3) RHI 380 (Specialty Food Service)
(3) RHI 438 (Equipment for Restaurants, Hotels, and Institutions)
(3) RHI 441 (Restaurant, Hotel, and Institutional Organization and Management)
(3) RHI 445 (Cost Controls in Food Service and Lodging)
(1) RHI 300 (Practicum in Restaurant, Hotel and Institutional Management)
(3) MGMT 430 (Labor Relations)

(16)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN TECHNOLOGY

Science and technology range from extremely simple to highly complex and abstract activities. At one extreme are the "professionals"; at the other, the mechanics, draftsmen, and service personnel. Within this broad spectrum, the educational backgrounds include doctoral degrees, master's degrees, bachelor's degrees, and associate's degrees at the University level, as well as certificates and diplomas from other post-high school educational and training institutions.

The University offers a number of two year undergraduate programs leading to the degree of Associate in Applied Science. Many of these are available at Purdue University North Central. The A.A.S. Degree is awarded to students who satisfactorily complete the program of study in one of the curricula described in the following pages. Those who have completed the requirements for the A.A.S. in one of the available curricula may be admitted to an additional two year program in Supervision at the North Central Campus leading to the Bachelor of Science Degree. Alternatively, the Associate Degree holder may be admitted to a junior/senior year curriculum at another campus of Purdue University leading to the Bachelor of Science Degree in the same field as the Associate Degree.

Holders of the Associate in Applied Science degree are called technicians. A technician is an employee whose job requires applied knowledge and applied technical

skills. The technician's work is somewhat akin to that of the professional, but more narrow in scope. The job requirements normally include those manipulative skills necessary to perform the technical tasks. These fields require considerable technical knowledge of the materials and processes involved as well as knowing how to apply the principles of physical sciences. In general, instruments are used, in contrast to tools. The technician's contribution is mainly through mental effort in conjunction with application of skills. In many organizations a technician is not limited to a single position but is permitted to move vertically in the organization to higher levels of responsibilities. This, of course, is dependent upon the individual's capability and willingness to pursue further education.

Various courses are offered to cover the basic knowledge and practices of present-day industry. Industrial leaders have been consulted to learn the kind of specific technical information required by persons who take jobs in industry. Many members of the instructional staff are drawn from local industries but course administration, teaching material, and standards of instruction are under the direction of the departments involved.

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ARCHITECTURAL TECHNOLOGY

This program prepares students for employment with architects, contractors, building materials suppliers, and various governmental agencies. Graduates accept positions as architectural draftsmen, estimators, planning technicians, field inspectors, and sales representatives.

The drafting courses begin with basic fundamentals and extend into wood frame systems and intermediate-size buildings. Other drawing courses include presentation techniques.

Materials, surveying, specifications, estimating, mechanical equipment and other courses related to construction are also a part of the program.

Related courses in the areas of mathematics, physical sciences, and humanities are essential in the development of a person who wishes to advance in the field of construction.

Students contemplating future transfer to an accredited architectural school should contact their advisor.

Graduates of this program may continue their education toward the Bachelor of Science degree in Supervision (Construction Emphasis) at this campus or toward the Bachelor of Science degree in Building Construction and Contracting at the West Lafayette or Calumet Campuses.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	TG 110 (Drafting Fundamentals)	(3)	ART 150 (Architectural Construction I)
(2)	BC 100 (Introduction to Construction)	(3)	COM 114 (Fundamentals of Speech Communication)
(3)	CET 104 (Elementary Surveying)	(2)	CET 208 (Route Surveying)
(3)	MA 147 (Algebra & Trigonometry for Technology I)	(3)	MA 148 (Algebra & Trigonometry for Technology II)
(3)	ENGL 101 (English Composition I)	(3)	CET 160 (Statics)
(2)	BC 170 (Plans & Specifications)	(3)	GNT 220 (Technical Report Writing)
(16)		(17)	

Summer

(1) BC 190 (Construction Experience I)
or
BC 195 (Construction Observation)

SOPHOMORE YEAR

Third Semester

(3) BC 230 (Mechanical & Electrical Systems)
(3) CET 260 (Strength of Materials)
(3) BC 270 (Materials and Estimates)
(4) PHYS 218 (General Physics)
(2) TG 200 (Introduction to CAD)

(15)

Fourth Semester

(3) ART 222 (Architectural Construction II)
(2) ART 221 (Architectural Presentation)
(3) BC 235 (Construction Materials and Systems)
(3) ECON 210 (Principles of Economics)
(3) CET 280 (Structural Calculations)
(3) Supervision Elective

(17)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN BUILDING CONSTRUCTION AND CONTRACTING

This program prepares students to become professional contractors-managers of the construction process. The program emphasizes the management of the people, money, machines, and materials with which structures are built. It stresses production rather than design, and management skills rather than craft skills.

Graduates are prepared to work for all types of contractors: residential, commercial, industrial, highway, heavy, mechanical, electrical and specialty. Graduates are also prepared for work in both the field and the office. Experienced graduates fill positions such as job superintendent, estimator, scheduler, cost analyst, project manager and company executive.

In the two years of this Associate Degree program, emphasis is placed on the development of the job skills needed by contractors, including plan reading, estimating, surveying, drafting and accounting. Graduates of this program may continue their education toward the Bachelor of Science degree in Supervision (Construction Emphasis) at this campus or toward the Bachelor of Science degree in Building Construction and Contracting at the West Lafayette or Calumet Campuses.

FRESHMAN YEAR

First Semester

(2) BC 100 (Introduction to Construction)
(2) BC 170 (Plans and Specifications)
(3) CET 104 (Elementary Surveying)
(3) TG 110 (Drafting Fundamentals)
(3) ENGL 101 (English Composition I)
(3) MA 147 (Algebra & Trigonometry for Technology I)

(16)

Second Semester

(3) ART 150 (Architectural Construction I)
(3) CET 160 (Statics)
(2) CET 208 (Route Surveying)
(3) COM 114 (Fundamentals of Speech Communication)
(3) GNT 220 (Technical Report Writing)
(3) MA 148 (Algebra & Trigonometry for Technology II)

(17)

Summer

(1) BC 190 (Construction Experience I)
or
BC 195 (Construction Observation)

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	BC 230 (Mechanical & Electrical Systems)	(3)	BC 235 (Construction Materials and Systems)
(3)	CET 260 (Strength of Materials)	(3)	CET 280 (Structural Calculations)
(3)	BC 270 (Materials and Estimates)	(3)	MGMT 200 (Introductory Accounting)
(4)	PHYS 218 (General Physics)	(3)	ECON 210 (Principles of Economics)
(3)	Computer Elective	(3)	Supervision Elective
		(3)	BC 345 (Scheduling)
(16)		(18)	

ASSOCIATE IN APPLIED SCIENCE DEGREE IN CIVIL ENGINEERING TECHNOLOGY

This program is designed to prepare students for employment with land surveyors, highway departments, contractors, city engineering offices and engineering consultants, as well as with other specializations of civil engineering. Graduates accept positions as topographers, structural draftsmen, steel and concrete laboratory technicians, or as instrument operators doing land surveys and highway surveys. With additional experience they may acquire positions as supervisors, or chiefs of parties in a variety of work associated with civil engineering.

The surveying courses begin with basic operation and use of equipment and progress through route surveying, land surveying and subdivision.

Other groups of courses consider structural systems, materials, strength of materials, and specifications and estimating.

To broaden the technician's ability to communicate in words and figures, courses in mathematics, physical science and communicative skills are required.

Graduates of this program may continue their education toward the Bachelor of Science degree in Supervision (Construction Emphasis) at this campus or toward the Bachelor of Science degree in Building Construction and Contracting at the West Lafayette or Calumet Campuses.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	TG 110 (Drafting Fundamentals)	(3)	ART 150 (Architectural Construction I)
(2)	BC 100 (Introduction to Construction)	(2)	CET 208 (Route Surveying)
(2)	BC 170 (Plans and Specifications)	(3)	CET 160 (Statics)
(3)	CET 104 (Elementary Surveying)	(3)	COM 114 (Fundamentals of Speech Communication)
(3)	ENGL 101 (English Composition I)	(3)	GNT 220 (Technical Report Writing)
(3)	MA 147 (Algebra & Trigonometry for Technology I)	(3)	MA 148 (Algebra & Trigonometry for Technology II)
(16)		(17)	

Summer

(1) BC 190 (Construction Experience I)
or
BC 195 (Construction Observation)

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	CET 260 (Strength of Materials)	(3)	CET 209 (Land Surveying and Subdivision)
(3)	BC 270 (Materials and Estimates)	(3)	CET 253 (Hydraulics & Drainage)
(3)	MA 223 (Introductory Analysis I)	(3)	CET 280 (Structural Calculations)
(4)	PHYS 218 (General Physics)	(3)	ECON 210 (Principles of Economics)
(2)	TG 200 (Introduction to CAD)	(3)	Business Elective
		(3)	Math/Science Elective
(15)		(18)	

ASSOCIATE IN APPLIED SCIENCE DEGREE IN COMPUTER-INTEGRATED MANUFACTURING TECHNOLOGY

Computer-integrated manufacturing technology (CIMT) concerns the developing field of automated manufacturing and material handling. The use of computers applied to design, machining, and manufacturing of products as well as in quality and process control is emphasized. The study of the properties of materials and their influence on manufacturing processes is also a vital part of this field of study.

An idea becomes a product through research and development and subsequent manufacturing. Technologists in this area become involved with arranging for production. The activities of systematic planning, design, and arrangement of processing methods and equipment will be conducted so that a product may be manufactured economically. This will usually involve a knowledge of equipment, tool design, operation sequencing, worker/machine interaction, processing procedures, and facilities and plant layout. Manufacturing technologists will inevitably work with mechanical, electrical, and industrial engineers engaged in product or plant design, in production, and quality control.

A computer-integrated manufacturing system encompasses all operations from order entry to product shipment. This can lead to significant cost reductions and better quality. A fully-integrated factory will consist of modular subsystems. The CIMT curriculum concentrates on study of the individual subsystems such as materials handling systems, robotic systems, CNC machining, and automated metrology.

Graduates of the program are prepared to enter manufacturing industries as technicians, engineering aides, production assistants, and quality control assistants. With accumulation of work experience, promotion to supervisory positions or as applications specialists is possible.

Sixty-six credit hours are required for the CIMT Associate Degree.

FRESHMAN YEAR

First Semester

(3) ENGL 101 (English Composition I)
(3) MA 147 (Algebra and Trigonometry for Technology I)
(3) MET 141 (Materials and Processes I)
(2) MET 160 (Applied Engineering Computational Analysis)
(3) TG 110 (Drafting Fundamentals)
(3) COM 114 (Fundamentals of Speech Communication)

(17)

Second Semester

(3) MA 148 (Algebra and Trigonometry for Technology II)
(3) CPT 175 (Computer Fundamentals and Programming for Technology)
(3) MET 102 (Production Drawing)
(3) MET 142 (Materials and Processes II)
(3) Social Science Elective

(15)

SOPHOMORE YEAR

Third Semester

(4) PHYS 218 (General Physics)
(3) MET 242 (Manufacturing Processes)
(3) EET 214 (Electricity Fundamentals)
(3) MET 230 (Fluid Power)
(3) CPT 275 (Software Concepts and Hardware Organization)
(3) MA 223 (Introductory Analysis I)

(19)

Fourth Semester

(4) PHYS 219 (General Physics)
(3) EET 233 (Electronics and Industrial Controls)
(3) MET 212 (Applications of Engineering Mechanics)
(3) CIMT 243 (Automated Manufacturing Processes)
(3) STAT 301 (Elementary Statistical Methods)

(16)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN COMPUTER TECHNOLOGY (PROGRAMMING)

This two-year associate degree program is designed to produce a graduate competent in computer programming in the commercial area. It prepares a person to perform the following functions: analyze problems, design flowcharts, design structure charts and pseudocode specifications, write computer programs using structured programming techniques, verify programs and modify existing programs. It also familiarizes the graduate with procedures common in this area of specialization.

The number of places in the Purdue University North Central Computer Technology program is limited and application does not insure admission. Applications must be submitted on or before January 1 for the fall semester of the following year.

Graduates of this program may continue their education toward the Bachelor of Science in Computer Technology at the West Lafayette Campus.

FRESHMAN YEAR

First Semester

(3) CPT 118 (Computers and Programming I)
(3) CPT 154 (Introduction to Computer-Based Systems)
(3) MA 147 (Algebra and Trigonometry for Technology I)
(3) ENGL 101 (English Composition I)
(3) COM 114 (Fundamentals of Speech Communication)

(15)

Second Semester

(3) CPT 165 (Introduction to COBOL)
(3) CPT 224 (Commercial Systems Applications)
(3) MA 148 (Algebra and Trigonometry for Technology II)
(3) ENGL 102 (English Composition II)
(3) ECON 210 (Principles of Economics)

(15)

SOPHOMORE YEAR

Third Semester

(3) CPT 265 (COBOL Programming)
(3) CPT 286 (Computer Operating Systems I)
(3) MGMT 200 (Introductory Accounting) or GBA equivalent
(3) MA 223 (Introductory Analysis I)
(3) GNT 220 (Technical Report Writing)
(3) CPT 261 (RPG Programming)

(18)

Fourth Semester

(3) CPT 280 (Systems Analysis and Design Methods)
(3) CPT 365 (Topics in COBOL) or CPT 388 (Topics in Programming Languages)
(3) MA 224 (Introductory Analysis II)
(3) STAT 301 (Elementary Statistical Methods I)
(3) MGMT 201 (Management Accounting I) or GBA equivalent

(15)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN ELECTRICAL ENGINEERING TECHNOLOGY

Accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET).

The electrical engineering technology program is a combination of courses in electrical engineering technology, mathematics, science and general academic subjects that lead to the degree of Associate in Applied Science. The program is designed to prepare students for employment as electronic technicians in research laboratories, electronic industries, or in any industry that uses electrical power or electronic controls.

The basic curriculum will provide the student with sufficient education to find employment in the fields of communications electronics, industrial electronics, military electronics, computer electronics, electronic servicing, electrical power, aviation electronics and others. Selective specialization in these areas is provided by technical elective courses in the second year of the program.

The duties of the electronic technician may include: construction, testing and troubleshooting of experimental circuits in research laboratories; installation, maintenance, troubleshooting, operation and testing of electrical and electronic equipment in industries; sales and service of electronic equipment, etc.

Electronic technicians may have the following job classifications: research or laboratory technician, electronics engineering technician, engineering development technician, product design technician, systems test technician, field service technician, production technician, maintenance technician, instrument technician, inspectors, electronic specialist and many others.

After experience and continued technical growth, graduates may hold such positions as technicians in engineering offices primarily working in the area of sales, services, or application. In addition some graduates take positions as supervisors, foremen or designers.

Graduates of this program may continue their education toward the Bachelor of Science degree in Electrical Engineering Technology at the West Lafayette, Calumet, Fort Wayne or Indianapolis Campuses.

FRESHMAN YEAR

First Semester

(4) EET 102 (Electrical Circuits I)*
(3) EET 105 (Digital Fundamentals I)*
(3) MA 147 (Algebra and Trigonometry for Technology I)*
(3) ENGL 101 (English Composition I)
(3) CS 140 (Introduction to Data Processing—BASIC)

(16)

Second Semester

(4) EET 152 (Electrical Circuits II)*
(4) EET 154 (Analog Electronics I)*
(3) EET 155 (Digital Fundamentals II)*
(3) MA 148 (Algebra and Trigonometry for Technology II)*
(3) COM 114 (Fundamentals of Speech Communication)

(17)

Summer—Sophomore

(4) EET 212 (Electrical Power and Machinery)*

SOPHOMORE YEAR

Third Semester

(4) EET 204 (Analog Electronics II)*
(4) EET 205 (Introduction to Microprocessors)*
(3) MA 223 (Introductory Analysis I)*
(3) CS 220 (Programming I for Engineers and Scientists)
(3) TG 110 (Drafting Fundamentals)

(17)

Fourth Semester

(3) EET 202 (Electrical Circuits III)*
(4) EET Technical Elective*†
(4) PHYS 218 (General Physics)
(3) MA 224 (Introductory Analysis II)*
(3) Non-Technical Elective (Humanities)

(17)

* A grade of "C" or better is required in these courses for entry into the B.S. program.

† EET Technical Electives are: EET 303, 317, or 331.

ASSOCIATE IN APPLIED SCIENCE DEGREE IN INDUSTRIAL ENGINEERING TECHNOLOGY

Accredited by the Technology Acccreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET).

This major field of specialization is designed to develop technicians to support the problem-solving and decision-making functions in management and to prepare for planning and control, work method analysis, work measurements, quality assurance and controls, and systems and procedures analysis. Practical applications of production-oriented operations, research techniques, data processing and computer programming fundamentals are stressed.

The industrial engineering technician is often initially employed in the industrial engineering, quality control, production control or plant layout department. With increased experience the student may advance within the department, directly assisting a professional industrial engineer, or may become a production supervisor. This broad technical background, together with the human relations background and a proficiency in engineering methods and mathematics, enables the industrial engineering technician to take advantage of opportunities for advancement in many directions.

Graduates of this program may continue their education toward the Bachelor of Science degree in Supervision with an emphasis in manufacturing or other industrial applications at Purdue University North Central.

FRESHMAN YEAR

First Semester

(3) IET 104 (Industrial Organization)
(3) MA 147 (Algebra & Trigonometry for Technology I)
(3) ENGL 101 (English Composition I)
(3) SPV 252 (Human Relations in Supervision)
(3) COM 114 (Fundamentals of Speech Communication)

(15)

Second Semester

(3) GNT 220 (Technical Report Writing)
(3) MA 148 (Algebra & Trigonometry for Technology II)
(3) ECON 210 (Principles of Economics)
(3) IET 250 (Fundamentals of Production Cost Analysis)
(3) IET Model Simulation Elective
(3) Computer Elective

(18)

SOPHOMORE YEAR

Third Semester

(3) TG 110 (Drafting Fundamentals)
(4) PHYS 218 (General Physics)
(3) IET 262 (Motion Study & Work Methods)
(3) IET 224 (Production Planning & Control)
(3) IET 204 (Techniques of Maintaining Quality)
(2) Technical Elective

(18)

Fourth Semester

(4) PHYS 219 (General Physics)
(3) IET 266 (Work Measurement & Incentives)
(3) STAT 301 (Elementary Statistical Methods I)
(3) MET 141 (Materials & Processes I)
(3) Technical Elective
(2) Technical Elective

(18)

TECHNICAL ELECTIVES

Computer Elective

(3) CS 110 (Introduction to Computers)
(3) CS 140 (Introduction to Data Processing - BASIC)
(3) CS 220 (Programming I for Engineers and Scientists)
(3) IET 201 (Microcomputers for Industrial Engineers)

IET Model Simulation Elective

(3) IET 268 (Plant Layout)
(3) IET 286 (Numerical Control Programming)
(3) IET 312 (Materials Handling)

Methods Improvement Option

(3) IET 120 (Systems and Procedures)
(2) IET 272 (Job Evaluation)
(3) IET 296 (Industrial Technology Case Problems)

Material Handling Option

(3) IET 268 (Plant Layout)
(3) IET 312 (Materials Handling)
(2) IET 296 (Industrial Technology Case Problems)

ASSOCIATE IN APPLIED SCIENCE DEGREE IN MECHANICAL ENGINEERING TECHNOLOGY

This program of study is designed to prepare students to take employment in manufacturing and production industries.

Emphasis is placed on the generation, transmission, and utilization of mechanical and fluid energy for the purpose of design and production of tools, machines, and their products.

Graduates accept jobs in laboratories, engineering departments, plant maintenance, production departments, and technical sales. With additional experience promotion to positions such as industrial supervisors, machine and tool designers, technical buyers, production expeditors, and cost estimators is possible. Graduates are eligible for certification as associate engineering technicians.

FRESHMAN YEAR

First Semester		Second Semester	
(2)	MET 160 (Applied Engineering Computations)	(3)	MET 102 (Production Drawing)
(3)	MET 141 (Materials and Processes I)	(3)	MET 111 (Applied Statics)
(3)	TG 110 (Drafting Fundamentals)	(3)	MET 142 (Materials and Processes II)
(3)	MA 147 (Algebra & Trigonometry for Technology I)	(3)	CS 220 (Programming I for Engineers and Scientists)
(3)	ENGL 101 (English Composition I)	(3)	MA 148 (Algebra & Trigonometry for Technology II)
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	GNT 220 (Technical Report Writing) (or Humanities Electives)
(17)		(18)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(4)	MET 211 (Applied Strength of Materials)	(3)	MET 214 (Machine Elements)
(2)	MET 213 (Dynamics)	(3)	MET 230 (Fluid Power)
(3)	MET 220 (Heat/Power)	(4)	PHYS 219 (General Physics)
(3)	MET 242 (Manufacturing Processes)	(3)	IET 104 (Industrial Organization)
(3)	MA 223 (Introductory Analysis I)	(3)	Humanities Elective
(4)	PHYS 218 (General Physics)		
(19)		(16)	

ASSOCIATE IN APPLIED SCIENCE DEGREE IN SUPERVISION

This program is designed to meet the needs of individuals who wish to improve their skills as supervisors or to expand their general education.

Supervisors work in a wide variety of organizations and in many different functional areas. Therefore, the curriculum is designed to allow students to select courses, within specified categories, which best prepare them for the functional area and/or organization of their choice. Graduates of the program are eligible to continue toward a Bachelor of Science degree in Supervision.

General Plan of Study

TECHNICAL CORE AREA

Course		Title		Credit Hours
SPV	252	(Human Relations in Supervision)		3
SPV	374	(Supervisory Management)		3
SPV	431	(Occupational Safety and Health)		3
IET	104	(Industrial Organization)		3
			Total	12

COMMUNICATIONS AREA

ENGL	101	(English Composition I)		3
COM	114	(Fundamentals of Speech Communication)		3
			Total	6

FUNCTIONAL AREA

Recognizing that supervisors work in various functional areas, each student will be expected to select one or more groups of courses that are designed to increase technical effectiveness on the job. The following are examples of existing functional areas from which 15 credit hours are to be selected.

Supervision

SPV	240	(Labor Relations Problems)
SPV	268	(Elements of Law)
SPV	350	(Applied Creativity for Business and Industry)
SPV	375	(Basic Methods of Training for Supervisors)
SPV	376	(Supervision and Personnel Problems)
SPV	574	(Managerial Training and Development)
SPV	590	(Individual Research Problems in Supervision and Personnel)

Industrial Engineering Technology

IET	250	(Fundamentals of Production Cost Analysis)
IET	262	(Motion Study and Work Methods)
IET	266	(Work Measurement and Incentives)
IET	268	(Plant Layout)
IET	272	(Job Evaluation)
IET	280	(Wage Incentives)
IET	312	(Materials Handling)

Labor Relations

SPV	240	(Labor Relations Problems)
SPV	368	(Legislation Affecting Industrial Relations)
SPV	590G	(Grievance and Arbitration Procedure)
PSY	120	(Elementary Psychology)
SOC	100	(Introductory Sociology)

Total 15 credit hours

SUPPORTIVE AREA

Each supervisor should have a balanced educational experience, therefore both technical and non-technical courses are included in the programs. With the approval of the academic advisor, the student may select from a wide range of courses. Some of the more typical courses considered applicable are listed below:

Non-technical

MGMT	200	(Introductory Accounting)
MGMT	201	(Management Accounting I)
SOC	100	(Introductory Sociology)
PSY	120	(Elementary Psychology)
GNT	220	(Technical Report Writing)
		or
ENGL	420	(Business Writing)
ECON	210	(Principles of Economics)
COM	315	(Speech Communication of Technical Information)
		or
COM	415	(Discussion of Technical Problems)

Requirements 12-18 credit hours

Technical

MA	147, 148	(Algebra and Trigonometry for Technology I and II)
CHM	111, 112	(General Chemistry)
PHYS	218, 219	(General Physics)
		or
PHYS	210	(The Nature of Physical Science I)
MET	141	(Materials and Processes I)
TG	110	(Drafting Fundamentals)
CS	110	(Introduction to Computers)
IET	262	(Motion Study and Work Methods)
IET	266	(Work Measurement and Incentives)

In addition, other engineering and technology courses may be selected to satisfy the technical requirements.

Requirements	12-18 credit hours
Grand Total	62 credit hours

GRADUATE STUDY

Limited graduate work is available at Purdue University North Central. Courses offered are primarily in elementary education. Occasionally courses are offered in secondary education or other professional areas. For further information regarding these programs contact the Graduate Education Advisor at Purdue University North Central, Westville, Indiana 46391.

MASTER OF SCIENCE IN ELEMENTARY EDUCATION

In cooperation with the West Lafayette Campus, Purdue University North Central offers a 30 hour Master of Science in Education program in the elementary education area. This program is designed for those students whose undergraduate training qualifies them for a teacher's license. However, applicants who can meet the general Graduate School requirements for admission can usually be accepted conditionally when there are special prerequisites to be met, with full admission granted upon removal of deficiencies.

A bachelor's degree is required of all applicants. However, the degree need not have been awarded in education. An adequate background in psychology and education is helpful. Primary consideration is given to the quality of the student's academic record.

Every student in the program must satisfy the University's English requirement for graduate students. Students are required to demonstrate a proficiency in English composition. Candidates satisfy the English requirement (1) if they made no grade below B in graded undergraduate courses in composition (pass/not pass grades are not acceptable), or (2) if they make a scaled score of 600 or higher on the Verbal Aptitude Section of the Graduate Record Examination.

In evaluating applications for admission, Purdue University is primarily concerned with an individual's capacity for teaching responsibility. Demonstration of intellectual capacity is of paramount importance. Close attention is also given to indications of personal development which may have a bearing on the individual's prospects for career success in the teaching profession.

The evaluation is based upon a detailed review of the written application, academic transcripts, letters of evaluation from former instructors and others who are qualified to evaluate the applicant's capacity for graduate study.

An applicant who falls in one or more of the following categories is expected to take the Aptitude Test Section of the Graduate Record Examination or the Miller's Analogy Test.

1. If the applicant received a bachelor's degree from a nonaccredited institution,
2. If previous academic records do not adequately reflect academic ability in the applicant's opinion.

Information regarding testing dates and locations may be obtained at the Admissions Office at Purdue University North Central.

Applications, transcripts, and supporting letters should be submitted at least two months prior to the beginning of the session for which admission is sought. There is no application fee. Admission to the program is made through the West Lafayette Campus.

TRANSFER OF CREDIT

As many as 15 hours of graduate credit earned at other universities may be applied toward this advanced degree. The conditions under which such credit transfer shall be made shall be determined by the department.

PLAN OF STUDY

The Master of Science program in Elementary Education is described in "Blocks" to illustrate flexibility and facilitate description.

Block I	Foundation Block of 9 hours is required.		
ED 500	(History and Philosophy of Education)		3 hours
ED 523	(Introduction to Measurement and Evaluation)		3 hours
ED 530	(Advanced Educational Psychology)		3 hours
		Total	9 hours

Block II	Elementary Block of 6 hours is required.		
ED 679	(Elementary School Curriculum)		3 hours
ED 682	(Individualizing Instruction in the Elementary and Secondary School)		3 hours
		Total	6 hours

Block III	Related Elementary Block of 9 hours is required.		
ED 522	(Reading in Middle and Secondary Schools)		3 hours
ED 675	(Language Arts in the Elementary School)		3 hours
ED 676	(Reading in the Elementary School)		3 hours
ED 677	(Social Studies in the Elementary School)		3 hours
ED 678	(Science in the Elementary School)		3 hours
ED 680	(Mathematics in the Elementary School)		3 hours
		Total	9 hours

Block IV	Elective Area Block of 6 hours is required.		
ED 570	(Media for Education and Training)		3 hours
ED 571	(Preparation of Instructional Materials)		3 hours
ED 573	(Microcomputer Applications for Education and Training)		3 hours
ED 575	(Computer-Assisted Instruction)		3 hours
ED 577	(Children's Literature)		3 hours
OR TWO COURSES APPROVED BY ADVISOR			
		Total	6 hours

The 15 semester hours of Graduate Elementary Education required to professionalize the Indiana teaching certificate are those listed in Blocks II and III.

The student's program is strengthened if the courses in the related elementary area and the elective courses have a clear relationship. For example, ED 677 (Social Studies in the Elementary School) may be combined with graduate courses in history or sociology. Similarly, ED 577 (Children's Literature) can be combined with courses in English.

TRANSFER PROGRAMS

One of the traditional functions of Purdue University North Central is to provide the first two years of academic work leading to a variety of bachelor's degree options. The student who desires to do so may complete the first two years leading to scores of specializations represented by various bachelor's degrees available on the several campuses of Purdue University while living at home. By working closely with an academic counselor, such students can also complete as much as one-half of an academic program leading to junior standing in most colleges and universities in the United States. Because Purdue University is fully accredited by the North Central Association of Colleges and Universities, all courses completed with a grade of C or better are likely to be accepted at the college of the student's choice. However, because requirements vary among universities, it is prudent to verify the appropriateness of all courses taken during the freshman and sophomore year with the university of intended upper class registration. Academic advisors will assist in the choice of courses when they are aware of the student's ultimate educational objective.

The following pages list some of the options available on other campuses of Purdue University and give sample programs for the first two years of such curricula. These are generally described in terms of requirements for the degrees on the West Lafayette campus. Because of slight variations between programs on different campuses of Purdue University, students should verify the appropriateness of the listed programs with the campus of intended registration. Since the listed sample programs for the freshman and sophomore year do not lead to degrees, they are given for guidance only and substitutions to meet particular variations anticipated in junior and senior year programs may be made freely.

Students are encouraged to secure a bulletin representing the appropriate school on the campus at which they intend to complete baccalaureate work begun at Purdue University North Central. The Student Services Office will assist in acquiring these materials.

AGRICULTURE PROGRAMS

The School of Agriculture at the West Lafayette Campus offers more than 40 programs of study leading to the degrees of Bachelor of Science (B.S.), Bachelor of Science in Forestry (B.S. in Forestry), and Bachelor of Science in Landscape Architecture (B.S.L.A.). The School of Agriculture and the Schools of Engineering cooperate to offer a five-year plan of study leading to the degrees of Bachelor of Science in Agricultural Engineering (B.S.Ag.E.) **and** Bachelor of Science in Forestry (B.S. Forestry). Detailed descriptions of degree requirements, departmental requirements, and specific programs can be found in the Bulletin of the School of Agriculture which is available from the School of Agriculture, Purdue University, West Lafayette, IN 47907.

Two of the four years required for most of the above programs may be completed at Purdue University North Central. These transfer programs are administered locally by the Section of Biology and Chemistry. For information on offerings at Purdue University North Central, you should contact your agriculture advisor or the Section Office.

Sample Plan of Study in Agriculture†

First Semester

(4) BIOL 108 (Biology of Plants)
(3) CHM 111 (General Chemistry)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) Agriculture Elective

(16)

Second Semester

(4) BIOL 109 (Biology of Animals)
(3) CHM 112 (General Chemistry)
(3) ENGL 102 (English Composition II)
(3) MA 154 (Algebra and Trigonometry II)
(3) Agriculture Elective

(16)

Third Semester

(3) BIOL 495 (Ecology)
(3) CS 220 (Programming I for Engineers and Scientists)
(3) COM 114 (Fundamentals of Speech Communication)
(3) Humanities Elective
(3) Option requirement

(15)

Fourth Semester

(5) BIOL 241/BIOL 242 (Genetics and Molecular Biology)
(3) STAT 301 (Elementary Statistical Methods I)
(3) ECON 210 (Principles of Economics)
(3) Humanities Elective
(3) Option requirement

(17)

Plan of Study in Preforestry

First Semester

(4) BIOL 108 (Biology of Plants)
(3) CHM 111 (General Chemistry)
(3) MA 153 (Algebra and Trigonometry I)
(3) ENGL 101 (English Composition I)
(3) Humanities-Social Science Elective

(16)

Second Semester

(4) BIOL 109 (Biology of Animals)
(3) CHM 112 (General Chemistry)
(3) MA 154 (Algebra and Trigonometry II)
(3) ENGL 102 (English Composition II)
(3) COM 114 (Fundamentals of Speech Communication)

(16)

Plan of Study in Preveterinary Medicine††

First Semester

(4) BIOL 108 (Biology of Plants)
(4) CHM 115 (General Chemistry)
(3) MA 153 (Algebra and Trigonometry I)
(3) ENGL 101 (English Composition I)
(3) Agriculture Elective

(17)

Second Semester

(4) BIOL 109 (Biology of Animals)
(4) CHM 116 (General Chemistry)
(3) MA 154 (Algebra and Trigonometry II)
(3) ENGL 102 (English Composition II)
(3) ECON 210 (Principles of Economics)

(17)

† There are variations in the plans of study for the various options. Students should see their agriculture advisor for further information.

†† Students who complete the preveterinary program cannot be assured of admission to veterinary school, and therefore, should see an advisor as to other degree possibilities.

Third Semester		Fourth Semester	
(4)	CHM 255/CHM 255L (Organic Chemistry)	(4)	CHM 256/CHM 256L (Organic Chemistry)
(3)	ANSC 221 (Introduction to Animal Nutrition)†	(5)	BIOL 241/BIOL 242 (Genetics and Molecular Biology)
(4)	PHYS 220 (General Physics)	(4)	PHYS 221 (General Physics)
(3)	COM 114 (Fundamentals of Speech Communication)	(6)	Humanities Electives
(3)	Humanities Elective		
(17)		(19)	

CONSUMER AND FAMILY SCIENCES

The primary purpose of the School of Consumer and Family Sciences at Purdue University is the intellectual development of its students and their preparation for professional services to the family and consumer. Four departments make up the school: Child Development and Family Studies; Consumer Sciences and Retailing; Foods and Nutrition; and Restaurant, Hotel, and Institutional Management. The Bachelor of Science degree is awarded to graduates of the School of Consumer and Family Sciences.

Students interested in preparation for work in the fields mentioned should enroll in the curriculum which follows.

CONSUMER SCIENCES AND RETAILING

Option (Major)	Retail Management Textile Science Apparel Technology Environmental Design Consumer Financial Advising Consumer Affairs

FOODS AND NUTRITION

Option (Major)	Foods and Nutrition in Business Coordinated Dietetic Program Dietetics Nutrition Science - Premedicine Food Science

RESTAURANT, HOTEL AND INSTITUTIONAL MANAGEMENT

Option (Major)	Restaurant Management Hotel Management Coordinated Dietetics Program Business Option Institutional Management - Administrative Dietetics
Associate degree	Dietetics Technician - Food Service Management Food Service and Lodging Supervision

† There is not always sufficient demand to offer ANSC 221. Students should consult the agriculture advisor for other alternatives.

CHILD DEVELOPMENT AND FAMILY STUDIES

Option (Major)
- Early Childhood Education
- Child Development and Family Studies

INTERDISCIPLINARY

- Consumer/Homemaking Education
- Consumer/Homemaking Education with Consumer Education Emphasis
- Consumer/Homemaking and Family Life Certification with Extension Emphasis
- Occupation Education
- Occupation Education with Child Care Emphasis
- Occupation Education with Food Service Emphasis
- Occupation Education with Nutrition Education Emphasis
- Option X (see advisor)

FRESHMAN YEAR

First Semester		Second Semester	
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	CHM 111 (General Chemistry)	(3)	CHM 112 (General Chemistry)
(3)	PSY 120 (Elementary Psychology)	(3)	SOC 100 (Introductory Sociology)
(3)	MA 111, 123, 147, 153, or 223 (according to student's background) MA 161 (for F&N majors)	(3)	COM 114 (Fundamentals of Speech Communication)
(3)	History or political science elective	(3)	Elective
(15)		(15)	

For further information and a bulletin describing in detail the programs of the School of Consumer and Family Sciences, the student should write the School of Consumer and Family Sciences, Purdue University, West Lafayette, Indiana 47907.

RESTAURANT, HOTEL, AND INSTITUTIONAL MANAGEMENT

To prepare students for a career in the hospitality industry, Purdue University North Central offers an associate degree program in Food Service and Lodging Supervision. The program is designed to prepare individuals for middle management positions in the hospitality industry. Graduates of this program assume responsibility for providing services in a multitude of situations where people eat or live away from home. Information on the Food Service and Lodging Supervision associate degree program may be found on page 54 of this bulletin.

Graduates of this program, who wish to continue in Restaurant, Hotel, and Institutional Management studies, can transfer to the West Lafayette campus and enroll in any one of several four-year options in the Department of Restaurant, Hotel, and Institutional Management.

ENGINEERING PROGRAMS

The Freshman Engineering program is available on the Purdue University North Central Campus. This basic core of courses which is common to the various professional engineering programs can lead to study in: aeronautics and astronautics, agricultural engineering, chemical engineering, civil engineering, electrical engineering, engineering sciences, industrial engineering, mechanical engineering, materials science, metallurgical engineering, nuclear engineering, and interdisciplinary engineering on the West Lafayette Campus.

FRESHMAN ENGINEERING

The Freshman Engineering program of study leads to admission in one of the Schools of Engineering. The freshman program of study in which an individual student is placed is determined by the College Entrance Examination Board tests and school record data.

The Freshman Engineering program of study can be completed in one year. There are alternate programs of study available—some for the very well prepared, some for those less well prepared. Certain students have essentially completed their freshman requirements by their high school work, while others may require more than two semesters to prepare themselves for the professional engineering schools. Each beginning engineering student is advised individually by an engineering faculty advisor to insure that the student is properly placed in a program so that the student has a high probability of success. Prospective beginning engineering students are encouraged to visit the engineering faculty advisor at Purdue University North Central as early as practicable in their junior or senior year in high school.

Students successfully completing this program may transfer to the West Lafayette Campus and pursue the engineering major of their choice (if qualified).

Typical Freshman Program

(For those students fully qualified upon entrance)

FRESHMAN YEAR

First Semester		Second Semester	
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	ENGL 101 (English Composition I)	(4)	PHYS 152 (Mechanics)
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	General Education Elective†
(3)	CS 220 (Programming I for Engineers and Scientists)		
(18)		(16)	

† All engineering students are required to take a minimum of 15 credit hours of general education courses in social sciences, fine arts and humanities.

COOPERATIVE PROGRAMS WITH INDUSTRY

Entrance into five-year cooperative education programs, administered by West Lafayette, is available to Purdue University North Central students in all of the engineering disciplines. Students participating in these programs alternate periods of attendance at the University with periods of work experience at engineering firms. The co-op experience begins after the completion of the freshman engineering requirements. Prospective co-ops should contact the engineering advisor at the North Central Campus for information on eligibility for participation in the program.

While completing the requirements for an engineering degree, students gain a realistic concept of the challenge, working conditions, and rewards of being a member of the engineering profession.

Students planning a graduate program gain experiences with instrumentation and experimental techniques that are a valuable asset for later thesis work. Students often earn nearly all of their educational expenses while working for their cooperative employer.

Upon completion of the program, the students receive the regular Bachelor of Science degree and a certificate indicating their completion of the cooperative education program.

HEALTH SCIENCE PROGRAMS

The School of Health Sciences at West Lafayette offers a variety of study areas, including medical technology, health physics, environmental and occupational safety and health, environmental toxicology, environmental assessment, and related environmental health programs. It also administers the prepharmacy program. Students completing the school's programs and gaining experience in the field may qualify for professional certification.

The first two years of many of the programs are available at the North Central Campus. Students who plan to transfer to the West Lafayette Campus to complete their programs of study should consult the School of Health Science Bulletin.

CAREER OPPORTUNITIES

Undergraduate plans of study are offered in the following disciplines:

Prepharmacy—a preprofessional curriculum for students who wish to apply for admission to the professional program in the School of Pharmacy and Pharmacal Sciences. The School of Pharmacy and Pharmacal Sciences does not admit students directly from high school; therefore, if you expect to apply for admission to this school, you should enroll as a prepharmacy student in the School of Health Sciences.

Medical Technology—a branch of medicine concerned with the performance of clinical laboratory tests that provide information to aid physicians in the diagnosis and treatment of disease.

Environmental and Occupational Safety and Health (Industrial Hygiene)—the study of hazardous materials and conditions in the industrial environment with emphasis on the control of factors that affect our general health and well-being.

Preallied Health—a preprofessional curriculum for students who wish to apply for admission to allied health programs at other universities.

PREPHARMACY

Students wishing to prepare for the profession of pharmacy may complete one year at Purdue University North Central. Application for transfer to the School of Pharmacy and Pharmacal Sciences (West Lafayette Campus) must be filed with the prepharmacy advisor before January 1 of the final spring semester at Purdue University North Central. Students who, for any reason, do not transfer to the School of Pharmacy and Pharmacal Sciences may apply for transfer to any other school of the University or remain in the School of Health Science, with a change of educational objective.

Complete requirements of the School of Pharmacy may be obtained by writing: School of Pharmacy, Purdue University, West Lafayette, Indiana 47907.

The following program describes the prepharmacy year.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	MA 223 (Introductory Analysis I)	(3)	MA 224 (Introductory Analysis II)
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(4)	BIOL 108 (Biology of Plants)	(4)	BIOL 109 (Biology of Animals)
(3)	Elective	(3)	Elective
(17)		(17)	

MEDICAL TECHNOLOGY

Students who wish to enter the Medical Technology curriculum at Purdue University, West Lafayette may take their first two years of coursework at Purdue University North Central. The following courses will allow you to continue coursework at the West Lafayette campus during your junior year in preparation for clinical studies during your senior year at an affiliated hospital program.

FRESHMAN YEAR

First Semester		Second Semester	
(4)	BIOL 108 (Biology of Plants)	(4)	BIOL 109 (Biology of Animals)
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	MA 223 (Introductory Analysis I)	(3)	MA 224 (Introductory Analysis II)
(3)	Humanities (Psychology)	(3)	Humanities (Sociology)
(17)		(17)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	BIOL 203 (Human Anatomy and Physiology)	(3)	BIOL 204 (Human Anatomy and Physiology)
(3)	CHM 255 (Organic Chemistry)	(3)	CHM 256 (Organic Chemistry)
(1)	CHM 255L (Organic Chemistry Laboratory)	(1)	CHM 256L (Organic Chemistry Laboratory)
(4)	STAT 301 (Elementary Statistical Methods I)	(4)	SPV 374 (Supervisory Management)
(3)	CS 140 (Introduction to Data Processing - BASIC)	(4)	BIOL 221 (Introduction to Microbiology)
(3)	Humanities Elective	(3)	Humanities Elective
(17)		(18)	

The Medical Technology curriculum is structured so that a student can study for three years at Purdue University and one year at an affiliated school of medical technology. Known as the "three-plus-one" program, this plan of study allows you to complete, by the end of your junior year, all of the coursework required for admission to a hospital-based training program during your senior year.

Hospitals are very selective. The student must maintain an above average grade point in order to be selected by a hospital program. In particular, emphasis will be placed on performance in biology and chemistry courses. A minimum of 90-95 credit hours must be completed by the end of the junior year to qualify for clinical studies.

Sometime during the sophomore year at Purdue University North Central, the student should plan to meet with the coordinator for Purdue's Medical Technology program on the West Lafayette Campus. He will assist in scheduling junior classes at the main campus and also provide information about the clinical studies offered through affiliated hospital laboratories.

ENVIRONMENTAL AND OCCUPATIONAL SAFETY AND HEALTH (Industrial Hygiene)

Because of growing public awareness of the need for environmental pollution control and worker protection, increasing attention is being focused on these problems at all levels of society. The environmental and occupational safety and health area is concerned with the study, management, and control of natural and man-made factors in the general environment and in the work place and their relationship to human health and well-being.

Many of the harmful effects of a wide variety of physical, chemical, and biological elements in the residential, occupational, and outdoor environments are initially unsuspected and stem from man's attempts to obtain some other benefit through the use of these elements. Such deleterious effects may be acute or may manifest themselves only after long-term exposures. The environmental and occupational safety and health area requires a well-coordinated interdisciplinary approach. Thus, the curriculum relies heavily on the biological, chemical, physical, mathematical, engineering, and health sciences.

Graduates of this program will be capable of identifying, analyzing, and promoting control of health and safety hazards in the general and occupational environments; recommending procedures for controlling health hazards using scientific and engi-

neering principles in power systems, ventilation, noise control, and materials and chemical handling; evaluating, planning, implementing, and supervising broad safety and health programs; serving and interacting with the governmental regulatory bodies; and promoting human health in the work and community environments.

The first two years of this program are available at the North Central Campus.

Sample Plan of Study: Environmental and Occupational Safety and Health (Industrial Hygiene)

FRESHMAN YEAR

First Semester		Second Semester	
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(5)	MA 161 (Plane Analytic Geometry and Calculus I)	(5)	MA 162 (Plane Analytic Geometry and Calculus II)
(3)	PSY 120 (Elementary Psychology)	(3)	SOC 100 (Introductory Sociology)
(15)		(15)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	BIOL 203 (Human Anatomy and Physiology)	(3)	BIOL 204 (Human Anatomy and Physiology)
(3)	CHM 255 (Organic Chemistry)	(3)	CHM 256 (Organic Chemistry)
(1)	CHM 255L (Organic Chemistry Laboratory)	(1)	CHM 256L (Organic Chemistry Laboratory)
(4)	PHYS 220 (General Physics)	(5)	PHYS 221 (General Physics)
(3)	STAT 301 (Elementary Statistical Methods)	(3)	SPV 431 (Occupational Safety and Health)
(3)	Elective		
(17)		(15)	

PREALLIED HEALTH

Students interested in submitting applications for admission to allied health programs at other universities may enroll in the School of Health Sciences. You will be assigned to an academic advisor who will assist you in selecting the most appropriate set of courses according to your career preference(s). You will also be encouraged to utilize the health sciences career resources available within the Counseling Center.

Sample Plan of Study: Preallied Health

FRESHMAN YEAR

First Semester		Second Semester	
(4)	CHM 115 (General Chemistry)	(4)	BIOL 109 (Biology of Animals)
(3)	ENGL 101 (English Composition I)	(4)	CHM 116 (General Chemistry)
(3)	MA 153 (Algebra and Trigonometry I)	(3)	ENGL 102 (English Composition II)
(3)	PSY 120 (General Psychology)	(3)	SOC 100 (Introduction to Sociology)
(3)	Elective	(3)	MA 154 (Algebra and Trigonometry II)
(16)		(17)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	BIOL 203 (Human Anatomy and Physiology)	(3)	BIOL 204 (Human Anatomy and Physiology)
(3)	CHM 255 (Organic Chemistry)	(4)	PHYS 221 (General Physics)
(1)	CHM 255L (Organic Chemistry Laboratory)	(3)	CHM 256 (Organic Chemistry)
(4)	PHYS 220 (General Physics)	(1)	CHM 256L (Organic Chemistry Laboratory)
(3)	PSY 350 (Abnormal Psychology)	(3)	Sociology Elective
(3)	Elective	(3)	Elective
(17)		(17)	

HUMANITIES, SOCIAL SCIENCE AND EDUCATION PROGRAMS

Purdue University North Central offers a Bachelor of Arts degree in Elementary Education, a Bachelor of Liberal Studies, and nearly 60 credit hours toward a Bachelor's degree in most programs offered in the School of Humanities, Social Science and Education. By transferring to one of the other campuses of the University, or another college or university, the student can complete the work leading to the Bachelor of Arts or the Bachelor of Science Degree with a variety of major options. See also the description of the Bachelor of Liberal Studies on page 46 and the Bachelor of Arts in Elementary Education on page 41.

Attainment of the objectives of the School of Humanities, Social Science and Education is accomplished in two ways. One is through the specialized knowledge a student acquires by taking major or minor programs in one or more of the subjects offered by the departments of the school. The other is through the opportunity to gain skill and knowledge in other areas of learning through a combination of requirements and free electives.

Students interested in completing the bachelor's degree in an area of Humanities, Social Science or Education are encouraged to obtain a bulletin describing these programs on the campus of intended upper division registration. For the programs available in West Lafayette students should write: School of Humanities, Social Science and Education, Purdue University, West Lafayette, Indiana 47907.

The first two years of programs in the following areas are offered at Purdue University North Central.

HUMANITIES (Non Teaching)

DEPARTMENT AND PROGRAMS		
Audiology & Speech Sciences		
Audiology & Speech Sciences Area	45 hrs.	
Clinical Concentration	44 hrs.	
Communication		
General Communication Major	24 hrs.	
Mass Communication Concentration	45 hrs.	- no minor
Telecommunication Concentration	44 hrs.	
Advertising Concentration	45 hrs.	

Journalistic Concentration	45 hrs.
Interpersonal Communication Concentration	45 hrs. - no minor
Organizational Communication Concentration	45 hrs.
Public Relations Concentration	45 hrs.
Creative Arts	
Theatre Major	34 hrs. - no minor
Theatre Area	45 hrs.
Theatre Concentration:	
Design & Technology Option	45 hrs.
Directing Option	45 hrs.
Acting Option	45 hrs.
Art History Major	24 hrs. + minor
Fine Arts Concentration	45 hrs.
Photography Major	42 hrs. - no minor
Craft Concentration	42 hrs.
English	
English Major	30 hrs. - no minor
Creative Writing Major	33 hrs. - no minor
Foreign Languages & Literatures	
French Concentration	44 hrs.
French Major	35 hrs. + minor
German Area	44 hrs.
German Concentration	44 hrs.
German Major	35 hrs. + minor
Russian Concentration	44 hrs.
Russian Major	35 hrs. + minor
Spanish Concentration	44 hrs.
Spanish Major	35 hrs. + minor
Philosophy	
Philosophy Major	27 hrs. + minor
Physical Education, Health & Recreation	
Athletic Training Concentration	46 hrs.
Community Health Major	35 hrs. - no minor
Movement, Sports Sciences Major	33 hrs. - no minor
Recreation Studies Major	35 hrs. - no minor
Recreation Studies Concentration	45 hrs.
Interdisciplinary within HSSE Departments	
Comparative Lit. Area	45 hrs.
Afro-American Studies Major	30 hrs. - no minor
American Studies Area	39 hrs.
Science & Culture Major	33 hrs. - no minor
Film Major	35 hrs. - no minor
Medieval Studies Major	33 hrs. + minor
Linguistics Major	35 hrs. - no minor
Religious Studies Major	24 hrs. - no minor
Interdisciplinary between HSSE School and other schools	
Foreign Language and General Management (Double Major) maximum of 138 hrs., with special core	
Vocational Home Economics Major	42 hrs. + minor
Program in Economics	51 hrs. - no minor
Interior Design	43 hrs.

SOCIAL SCIENCES

DEPARTMENT AND PROGRAMS

History	
General History Major	30 hrs. - no minor
American History Major	33 hrs. - no minor
European History Major	33 hrs. - no minor
Non-Western History Concentration	45 hrs.
World History Concentration	45 hrs.
Political Science	
Political Science Major	33 hrs. - no minor
Psychology	
General Psychology Major	33 hrs. - no minor
Sociology	
Anthropology Major	30 hrs. - no minor
Sociology Major	24 hrs. + minor
Sociology/Anthro. Concentration	39 hrs.
Social Work Concentration	42 hrs.
Criminology/Crime Justice	34 hrs.

The following sample program for the first two years will satisfy most of these major areas.

FRESHMAN YEAR

First Semester		Second Semester	
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	Foreign Language 101	(3)	Foreign Language 102
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	ECON 210 (Principles of Economics) or COM 318 (Principles of Persuasion)
(3)	MA 123, 147, or 153	(3)	STAT 114, MA 148, or 154
(3)	HIST 151 (American History to 1877)	(3)	PHIL 110 (Introduction to Philosophy)
(15)		(15)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	PHYS 210, CHM 111 or BIOL 211	(3)	CHM 112 or BIOL 212
(3)	POL 101 or COM 318	(3)	PSY 120 or SOC 100
(3)	A&D 255 or MUS 250	(3)	Major Req. or Elective
(3)	ENGL LIT 200-level	(3)	Major Req. or Elective
(3)	Foreign Language 203	(3)	Major Req. or Elective
(15)		(15)	

MANAGEMENT PROGRAMS

Purdue University's Krannert School of Management ranks among the top business schools in terms of quality of education and as a source of corporate management talent. Purdue University North Central students may complete the first two years of the program leading to the bachelor of science degree in management at the campus in Westville. Following completion of the bachelor's degree, students may enter the Krannert Graduate School of Management and pursue advanced degrees in industrial administration, management, and industrial relations.

INDUSTRIAL MANAGEMENT

As today's society makes increasing use of technology, managers must keep informed to handle their own jobs effectively and to be able to understand and cooperate with the technical specialist. The management curriculum, by including a required technical sequence, enables the student to take advantage of Purdue's excellent resources in science and technology. Through the technical option, students are provided an opportunity to acquire a basic understanding of a specific area in the field of science and technology. Such an objective is essential if the individual is to be capable of working effectively with engineers and scientists in a technically-based industry.

Included in the curriculum is a concentration of mathematics and quantitative methods courses designed to provide the necessary training and background in the use of rigorous analytic techniques applicable to management decision. This program is designed to help the student develop this kind of broad understanding of the management process.

An administrator cannot be made in the short span of a few months or years. Indeed, most individuals require years of experience to develop the skills, insights, and maturity of judgement which distinguish an effective manager. However, a professional management curriculum can give the student an effective start in developing as a manager. In brief, it can help the student become a more useful member of an organization early in the career development process, and it can aid in more rapid growth and learning in positions of increased responsibility.

MANAGEMENT

The management curriculum provides a rigorous and coordinated series of courses in the field of economics and business management as a means of developing a broad fundamental background in organizations and the economic environment in which they operate. The program includes a liberal arts base and course sequences covering economic principles, mathematics and statistics, and accounting, plus courses in business law, production, marketing, finance, strategic management, computer science, and labor relations. In addition, related courses are selected in areas of special interest to the student. Elective hours permit either further concentration in management and economics or an enrichment in the general education area.

Business and government leaders, employment officials, and schools for advanced study, such as law schools, have endorsed this type of management education. The program satisfies the need of future junior managers for a broad, analytically-oriented base on which to build specific training and experience received on the job.

ACCOUNTING

Today's large, complex industrial corporations require careful accounting in an environment of ever-changing tax laws, governmental regulations, and professional accounting rules. Accountants who enter the industrial world, who enter the practice of public accounting, and those that formulate new accounting regulations and pronouncements must all know fundamental accounting principles. Although some graduates enter directly into business or governmental career positions, many choose to enter public accounting first and later switch to either of the above careers or to further graduate study. Graduates completing this program are qualified to sit for the Indiana CPA and other professional examinations.

ECONOMICS

In contrast to the technically-based internal approach utilized in the management program, the economics curriculum provides a coordinated series of courses in the field of economics and business as a means of developing a broad fundamental background in business organizations and the economic environment in which a business operates. The program includes four two-semester sequences covering economic principles, aggregate economics, statistics and accounting, plus courses in business law and managerial economics. In addition, three related courses in economics and business, of special interest to the student, make possible a degree of specialization. Elective hours permit either further concentration in economics or enrichment in the general education area.

Graduates of this program are especially attractive to business leaders, employment officials, and schools for advanced study, such as law schools, who endorse this type of economics and business education. The broad, liberal arts background received in this program serves as a base upon which future business executives may build the specific training and experience they receive on the job.

ADVANCEMENT TO MANAGEMENT DIVISION

All entering students in the Management programs are admitted to the Pre-Management Division of the School. Only Pre-Management Division students who have completed a total of 44 credit hours, including all freshman and first-semester sophomore courses listed in the plans of study, and who have a grade point average of 4.75 (A = 6.0) or above are admitted to the Management Division. Students whose GPA is between 4.5 and 4.74 will be reviewed for admission to the Management Division by a Faculty Review Committee during their fourth semester.

TRANSFERRING INTO THE SCHOOL OF MANAGEMENT (CODO)

Many students change their degree objectives during their college careers. In order to transfer into the **Pre-Management Division** automatically a student must have a grade point average (GPA) of 4.5 or above in all previous course work, have completed a minimum of 15 credit hours at Purdue and have earned a C or higher grade in MA 223 or MA 161.

INDUSTRIAL MANAGEMENT

FRESHMAN YEAR

First Semester		Second Semester	
(3)	ENGL 101 (English Composition I)	(3)	ECON 251 (Microeconomics)
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(3)	ENGL 102 (English Composition II)
(3)	General Chemistry or General Physics 1 (Note A)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	General Chemistry or General Physics 2
		(3)	General Education 1 (Note B)
(14)		(17)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	ECON 252 (Macroeconomics)	(3)	MGMT 201 (Management Accounting I)
(3)	MGMT 200 (Introductory Accounting)	(3)	Minor (Note C)
(4)	MA 261 (Multivariate Calculus)	(3)	ENGL 420 (Business Writing)
(3)	CS 220 (Programming I for Engineers and Scientists)	(3)	STAT 225 (Introduction to Probability Models)
(3)	General Education 1 (Note B)	(3)	Elective
(16)		(15)	

Notes to Chart

A. Chemistry-Physics: Completion of any two courses (eight hours minimum) taken from CHM 115, 116, PHYS 152, 251, 220, 221.

B. General Education: Requirements consist of: Group 1—completing one two-course sequence; Group 2—completing one course from an additional area (to include psychology unless selected above). The areas for selection are communication,† history, literature, modern language, philosophy, political science, psychology, and sociology or anthropology.†

C. Applied Science Minor: A minimum of 15 hours is necessary. Areas are computer sciences, economics honors, engineering, quantitative methods, or science (biology, chemistry, geosciences, mathematics, or physics).

MANAGEMENT

FRESHMAN YEAR

First Semester		Second Semester	
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	ECON 251 (Microeconomics)
(3)	Laboratory Science 1 (Note A)	(3)	Laboratory Science 2
(3)	MA 153 (Algebra and Trigonometry I)	(3)	MA 154 (Algebra and Trigonometry II)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	General Education 1 (Note B)	(3)	General Education 1
		(3)	Elective
(15)		(18)	

† Cannot be used as General Education Group 1.

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	ECON 252 (Macroeconomics)	(3)	MGMT 201 (Management Accounting I)
(3)	MGMT 200 (Introductory Accounting)	(3)	MA 224 (Introductory Analysis II)
(3)	MA 223 (Introductory Analysis I)	(3)	ENGL 420 (Business Writing)
(3)	CS 220 (Programming I for Engineers and Scientists)	(3)	General Education 1
(3)	General Education 1	(3)	STAT 225 (Introduction to Probability Models)
		(3)	Elective
(15)		(18)	

Notes to Chart

A. Laboratory Science: Completion of any two semesters (six hours minimum) in biology, chemistry, geosciences, or physics.

B. General Education: Requirements consist of: Group 1—completing one four-course sequence; and Group 2—completing two two-course sequences (to include psychology unless selected above). The areas for selection are communication,† history, literature, modern language, philosophy, political science, psychology, and sociology or anthropology.†

ACCOUNTING

FRESHMAN YEAR

First Semester		Second Semester	
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	ECON 251 (Microeconomics)
(3)	Laboratory Science 1 (Note A)	(3)	Laboratory Science 2
(3)	MA 153 (Algebra & Trigonometry I)	(3)	MA 154 (Algebra & Trigonometry II)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	General Education 1 (Note B)	(3)	General Education 1
(15)		(15)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	ECON 252 (Macroeconomics)	(3)	CS 380 (Introduction to Data Management)
(3)	CS 220 (Programming I for Engineers and Scientists)	(3)	MGMT 201 (Management Accounting I)
(3)	MGMT 200 (Introductory Accounting)	(3)	ENGL 420 (Business Writing)
(3)	MA 223 (Introductory Analysis I)	(3)	General Education 2
(3)	General Education 2	(3)	MA 224 (Introductory Analysis II)
		(3)	STAT 225 (Introduction to Probability Models)
(15)		(18)	

† Cannot be used as General Education Group 1.

Notes to Chart

A. Laboratory Science: Completion of any two semesters (six hours minimum) in biology, chemistry, geosciences, physics, or computer science (other than CS 110, 140, or 145).

B. General Education: Requirements consist of completing two two-course sequences. The areas for selection are communication, history, literature, modern language, philosophy, political science, psychology, and sociology or anthropology. Psychology must be one of the areas selected.

ECONOMICS

FRESHMAN YEAR

First Semester		Second Semester	
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	ECON 251 (Microeconomics)
(3)	Laboratory Science 1 (Note A)	(3)	Laboratory Science 2
(3)	MA 153 (Algebra and Trigonometry I)	(3)	MA 154 (Algebra and Trigonometry II)
(3)	ENGL 101 (English Composition I)	(3)	General Education 1
(3)	General Education 1 (Note B)	(3)	ENGL 102 (English Composition II)
(15)		(18)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	ECON 252 (Macroeconomics)	(3)	ECON 352 (Intermediate Macroeconomics)
(3)	MGMT 200 (Introductory Accounting)	(3)	ENGL 420 (Business Writing)
(3)	MA 223 (Introductory Analysis I)	(3)	MA 224 (Introductory Analysis II)
(3)	CS 220 (Programming I for Engineers and Scientists)	(3)	STAT 225 (Introduction to Probability Models)
(3)	General Education 1	(3)	General Education 2
(15)		(15)	

Notes to Chart

A. Laboratory Science: Completion of any two semesters (six hours minimum) in biology, chemistry, geosciences, or physics.

B. General Education: Requirements consist of Group 1—completing one four-course sequence; and Groups 2 and 3—completing two two-course sequences (to include psychology unless selected above); and Group 4—completing one course in one other area (to include PHIL 150 unless selected above). The areas for selection are communication,† fine arts† (art, music, or theatre) or general studies,† history, literature, modern language, philosophy, political science, psychology, and sociology of anthropology.†

† Cannot be used as General Education Group 1.

SCIENCE PROGRAMS

The School of Science at West Lafayette offers more than 60 undergraduate programs of study in biological sciences, chemistry, computer science, geosciences, mathematics, physics, statistics, and general science, leading to the Bachelor of Science and the Bachelor of Science in Chemistry degrees. Detailed descriptions of degree requirements, departmental requirements and specific programs can be found in the Bulletin of the School of Science which is available from the School of Science, Purdue University, West Lafayette, IN 47097. In general, programs in the following areas are available at West Lafayette. The first two years of most of these programs are available at Purdue University North Central.

BIOLOGY

The Department of Biological Sciences at West Lafayette offers the following major programs leading to the Bachelor of Science degree. The first two years of these programs are available at Purdue University North Central.

General Biology. This major allows students to pursue a general curriculum in biology with the B.S. as a terminal degree or as preparation for graduate work. The general biology major is designed to let you work out a specific plan of study that suits your needs and interests.

While there are career opportunities for graduates with a B.S. in general biology, students who anticipate working immediately after earning a B.S. should consider supplementing departmental requirements with courses in applied areas. Consult your advisor for specific recommendations.

Biochemistry and Molecular Biology. The work of biochemists and molecular biologists involves research and/or teaching concerning the architecture of biologically important molecules and the chemistry that underlies life processes. You may also study biochemistry through majors in the Department of Chemistry in the School of Science and the Department of Biochemistry in the School of Agriculture.

Ecology, Evolutionary and Population Biology. Ecologists' work includes research and/or teaching concerning population genetics and evolution, adaptive strategies for survival, the nature of populations, and community ecology. Ecologists also offer technical services in connection with environmental impact decisions and regional planning, and environmental education at various levels—as teacher, naturalist, or journalist. If you are interested in this area, you should also consider programs in general science and the School of Agriculture.

Cell and Developmental Biology. Cell biologists study the structure and function of cells and cellular components. Developmental biologists study development and its regulation in animals, plants, or microbes.

Genetic Biology. Geneticists study the mechanisms of heredity (gene transmission and gene functions) in plants, animals, and microbes. They also work in the application of genetics to medicine and to plant and animal improvement in agriculture. Students interested in applied genetics should also consider programs in the School of Agriculture.

Microbiology. Microbiology includes the study of viruses, bacteria, and fungi.

The American Board of Microbiology, a committee of the American Academy of Microbiology, has established a National Registry of Microbiologists to recognize individuals at the bachelor's level who have an adequate understanding of basic and applied microbiology. Part of the requirements for registration specify 30 credits in biological sciences, 20 of which must be in microbiology. It is likely that similar criteria will be used for classification as a microbiologist in the U.S. Civil Service Commission. You should consider this when selecting your elective courses.

Neurobiology and Animal Physiology. Neurobiologists are concerned with the study of the nervous system. Areas of interest to them include the cellular and molecular basis of nervous functions; the structure, function and development of the nervous system; the neural control of other group organ systems; and the biological basis of behavior. Animal physiologists are concerned with the study of animal functions.

Plant Science. Plant scientists study the classification, structure, development, and function of plants. Many botanists do basic research, but many also work on practical problems of crop improvement and disease control.

Biology Teaching. If you are preparing to teach biology in secondary schools, you must meet the requirements set by the Teacher Education Council. You must also meet state, school and departmental requirements. Although each state has different requirements for teacher certification, your Indiana certificate will be reciprocal in most. In addition, you can ascertain the requirements in other states by writing directly to the Certification Office, Department of Public Instruction in the capital city of any state.

Preprofessional. This program is designed to prepare students for admission to an accredited school of medicine, dentistry or veterinary medicine. This program provides an opportunity to fulfill the requirements for the B.S. by taking three-fourths of the total credit hours for graduation, including all required courses, in six semesters, and successfully completing the first year at an accredited school of medicine, dentistry, optometry or veterinary medicine.

Since admission requirements vary among different professional schools, it is essential that the student determine the requirements of the specific institution chosen for professional study. An academic advisor will help work out a program which reflects these requirements.

Completing the preprofessional program does not guarantee admission to a professional school or hospital training program. Students should consult their academic advisor about alternate career options and requirements.

Sample Plan of Study†

FRESHMAN YEAR

First Semester		Second Semester	
(4)	BIOL 109 (Biology of Animals)	(4)	BIOL 108 (Biology of Plants)
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	MA 223 (Introductory Analysis I)	(3)	MA 224 (Introductory Analysis II)
	or		or
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(3)	Foreign Language	(3)	Foreign Language
(17-19)		(17-19)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(5)	BIOL 231-232 (Cell Structure and Function)	(5)	BIOL 241-242 (Genetics and Molecular Biology)
(4)	CHM 255-255L (Organic Chemistry)	(4)	CHM 256-256L (Organic Chemistry)
(3)	MATH Elective	(3)	MATH Elective
	and/or		and/or
(4)	PHYS 220 (General Physics)	(4)	PHYS 221 (General Physics)
(3)	Foreign Language	(5)	Foreign Language
(15-19)		(15-19)	

CHEMISTRY

The Department of Chemistry at West Lafayette offers the following baccalaureate programs of which the first two years may be taken at Purdue University North Central.

Bachelor of Science in Chemistry Degree. This degree program is designed primarily for students planning to go on to graduate study, or those preparing for careers as chemists in industry, universities, or research institutes. It fulfills the recommendations of the Committee on Professional Training of the American Chemical Society; graduates who follow this program will be certified to the American Chemical Society as having fulfilled recommended requirements.

Bachelor of Science Degree with Chemistry Major. This degree program requires the same basic courses in chemistry as the B.S. in Chemistry degree program, but permits more electives. By their choice of electives, students can develop a program of study in another area to complement their chemistry program and so prepare for a variety of chemically oriented careers. This program is particularly suited for students preparing for careers as geochemists, medical doctors, scientific librarians, science writers, chemical salesmen, chemical patent attorneys, or other careers requiring less highly specialized training in chemistry than is offered for the B.S. in Chemistry degree.

† Course requirements vary among different major programs. Course sequencing may vary among individual students. Consult your biology advisor for guidance.

Bachelor of Science Degree with Chemistry Teaching Major. This program is designed to satisfy the requirements for certification to teach chemistry in the secondary schools of Indiana in addition to meeting the requirements for the B.S. degree with a chemistry major.

Bachelor of Science in Chemistry — Bachelor of Science in Chemical Engineering. This program is designed to prepare students for research, development, operation, design of chemical systems, and management in the chemical industry. It can also serve as preparation for subsequent graduate work.

Sample Plan of Study†

FRESHMAN YEAR

First Semester		Second Semester	
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	Foreign Language	(3)	Foreign Language
(15)		(15)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(3)	CHM 255 (Organic Chemistry I)††	(3)	CHM 256 (Organic Chemistry II)
(1)	CHM 255L (Organic Chemistry Laboratory)	(1)	CHM 256L (Organic Chemistry Laboratory)
(4)	MA 261 (Multivariate Calculus)	(4)	MA 262 (Linear Algebra and Differential Equations)
(4)	PHYS 152 (Mechanics)	(5)	PHYS 251 (Heat, Electricity, and Optics)
(3)	Foreign Language	(3)	Foreign Language
(15)		(16)	

COMPUTER SCIENCE

The Department of Computer Sciences at West Lafayette offers bachelor's degree options in five areas:

1. General computer sciences
2. Business data processing
3. Scientific computing

† Course requirements vary among different major programs. Course sequencing may vary among individual students. Consult your chemistry advisor for guidance.

†† The preferred organic chemistry sequence for majors, CHM 261, 262, is unavailable at Purdue University North Central. CHM 550 is required and CHM 560 is strongly recommended of majors who complete the CHM 255-256 sequence and transfer to West Lafayette.

4. Systems and programming

5. Interdisciplinary studies

Students may take many electives and other required freshman/sophomore courses at the North Central Campus. A limited number of the required Computer Science courses are offered. An associate degree program in Computer Technology is also available on the campus. See page 61 for detailed program description.

Further information may be obtained by writing: School of Science, Purdue University, West Lafayette, Indiana 47907.

GEOSCIENCES

Geoscience in the broadest sense is the science of the earth, dealing with the atmosphere, the oceans, and the solid earth. Geoscientists are concerned with our standard of living as determined by available mineral resources and our quality of life as determined by the physical environment. Therefore, geoscience involves the solution of many challenging basic and applied problems.

The Department of Geosciences at West Lafayette offers three programs leading to the Bachelor of Science degree:

1. Solid earth science

2. Atmospheric science (meteorology)

3. Earth science teaching

Students may take many electives and other required freshman/sophomore courses at the North Central Campus. However, none of the required geoscience courses is offered.

Further information may be obtained by writing: School of Science, Purdue University, West Lafayette, Indiana 47907.

MATHEMATICS

The first two years of a standard mathematics program are available at Purdue University North Central. Students may transfer to the West Lafayette or Calumet Campus of Purdue University or other universities and colleges to complete a baccalaureate degree.

In particular the Department of Mathematics at West Lafayette offers a broad range of programs leading to the Bachelor of Science degree. Detailed descriptions of these programs and brief summaries of the kinds of careers they prepare graduates for are listed in the Purdue University School of Science bulletin in the mathematics section under the heading, "Plans of Study and Career Opportunities." More information about career opportunities is available in the booklet, *Professional Opportunities in Mathematics*. It can be obtained from: Mathematical Association of America, 1529 18th Street, N.W., Washington, D.C. 20036.

FRESHMAN YEAR

First Semester		Second Semester	
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	Foreign language (German preferred)	(3)	Foreign Language
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(3)	Elective	(3)	Elective
(18)		(18)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(4)	MA 261 (Multivariate Calculus)	(3)	MA 351 (Elementary Linear Algebra)
(3)	Foreign Language	(3)	Foreign Language
(3)	CS 220 (Programming I for Engineers and Scientists)	(4)	MA 262 (Linear Algebra and Differential Equations)
(4)	Science Elective	(4)	Science Elective
(3)	Humanities Elective	(3)	Elective
(17)		(17)	

The mathematics department in West Lafayette accepts students as majors after they complete MA 351. Prospective majors should have at least a 5.0 grade point average in calculus courses and in MA 351. Students planning to transfer to other institutions should obtain plans of study from those institutions as soon as possible.

Further information may be obtained by writing: School of Science, Purdue University, West Lafayette, Indiana 47907.

PHYSICS

Purdue University North Central offers the first two years of a standard physics program. Students may transfer to the West Lafayette or Calumet Campuses of Purdue University or to other colleges and universities to complete a baccalaureate degree.

The Department of Physics at West Lafayette offers five plans of study leading to the bachelor's degree:

1. Plan A - honors program
2. Plan B - regular program
3. Plan C - secondary school teaching major
4. Applied physics - regular
5. Applied physics - honors

FRESHMAN YEAR

First Semester		Second Semester	
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(4)	CHM 115 (General Chemistry)	(4)	CHM 116 (General Chemistry)
(5)	MA 161 (Plane Analytic Geometry & Calculus I)	(5)	MA 162 (Plane Analytic Geometry & Calculus II)
(3)	Foreign Language	(3)	Foreign Language
		(4)	PHYS 152 (Mechanics)
(15)		(19)	

SOPHOMORE YEAR

Third Semester		Fourth Semester	
(4)	MA 261 (Multivariate Calculus)	(4)	MA 262 (Linear Algebra and Differential Equations)
(5)	PHYS 251 (Heat, Electricity, and Optics)	(3)	Foreign Language
(3)	Foreign Language	(6)	Elective
(3)	Elective		
(15)		(13)	

Further information may be obtained by writing: School of Science, Purdue University, West Lafayette, Indiana 47907.

STATISTICS

The Department of Statistics at West Lafayette offers two plans of study leading to the Bachelor of Science degree.

1. Statistics Major - preparation in a wide variety of careers or graduate study.
2. Statistics Honors Program - preparation for graduate study in mathematical statistics.

The first two years of both of these programs may be completed at Purdue University North Central by following the programs listed under Mathematics in this bulletin.

Further information may be obtained by writing: School of Science, Purdue University, West Lafayette, Indiana 47907.

COMMUNITY COLLEGE

The Community College is the arm of Purdue University North Central which is designed to provide flexible service to prospective students, employers and the public of North Central Indiana. In addition to the standard Purdue University curricula described elsewhere in this bulletin, the Community College is able to initiate and conduct courses and programs not available on other Purdue University campuses.

One of the purposes of the college is to provide post high school educational opportunities for those who did not, while in high school, prepare to meet the entrance requirements for one of the several curricula for the University. The Community College operates a Bridge Program for students who have academic deficiencies but who desire to prepare themselves to enter one of the standard curricula of the University.

In addition, the Community College provides a place where students not yet committed to a specific program of study can explore, experiment and mature in their thinking regarding future educational objectives. While in the Community College a student can sample and explore the various offerings available on campus and profit from academic counseling while resolving doubts about ultimate academic goals. The Community College can also serve students who plan to complete their education at other institutions of higher education, including other campuses of Purdue University, but who wish to make a start toward their educational goals while living at home.

Exercising its flexibility, the Community College will design courses, programs and curricula to meet specific immediate and future community needs in cooperation with governmental and private agencies. Educational opportunities to provide upward mobility are made available. The General Business program is an example.

BRIDGE PROGRAM

The Community College Bridge Program is designed to serve as a bridge from the student's present academic level to a level which will allow the student to pursue present Purdue curricula and/or programs at other institutions. It is designed for veterans and other adults who wish to return to college as well as recent high school graduates who need additional skills. The program concentrates on basic skills in three areas, namely;

1. Study skills
2. Communication skills
3. Mathematical skills

Some students require the complete program while others require only portions of it. They take regular credit courses and those Community College Bridge Program (the Basic Curriculum given below) courses in areas where they need special help.

BASIC CURRICULUM

First Semester		Second Semester	
(3)	GNC 160 (Arithmetic and Fundamentals of Algebra)	(3)	ENGL 101 (English Composition I) or ENGL 100 (English Composition -for those who had GNC 070 in their first semester)
(3)	GNC 100 (Study Skills)	(3)	GNC 260 (Algebra and Fundamentals of Geometry)
(3)	ENGL 100 (English Composition) or GNC 070 (Review of Basic English)	(3)	COM 114 (Fundamentals of Speech Communication)
(3-6)	Electives	(3-6)	Elective
(12-15)		(12-15)	

GNC 071. READING ENHANCEMENT PROGRAM. This developmental course is offered for those students seeking assistance in their reading skills.

Any University course for which the student has the necessary prerequisites, may be selected as an elective in the Bridge Program. The following is a list of courses which have no prerequisites. Before enrolling in any course, students should seek the advice of an academic advisor.

CS 110	(Introduction to Computer)	(3)
HIST 151	(American History to 1877)	(3)
HIST 152	(United States Since 1877)	(3)
GBG 126	(Personal Finance)	(3)
GBG 127	(Introduction to Business)	(3)
GBM 129	(Principles of Marketing)	(3)
MUS 250	(Music Appreciation)	(3)
POL 101	(American Government and Politics)	(3)
PSY 120	(Elementary Psychology)	(3)
SOC 100	(Introductory Sociology)	(3)

CERTIFICATE PROGRAMS

In addition to the A.A.S. degree program, intensive and practical programs of shorter duration are available. These programs lead to certificates attesting that the student has completed a prescribed course of study.

The certificate programs are designed primarily for the mature part-time student through consultation with representatives from labor, industry, and the service areas of our society.

These are practical programs of less than 40 semester hours of credit. Advancement in each of these programs can be varied to suit the needs of the individual student who may take one, two, or three courses each semester. The average part-time student can complete any one of the programs within three years.

Enrollment is on the basis of a program carefully tailored to meet individual student needs and vocational objectives through consultation with an academic advisor. Changes in the student's program arising out of new work assignments or changes in vocational objective may also be worked out with the academic advisor.

GENERAL BUSINESS CERTIFICATE PROGRAM

The General Business Certificate Program is an intensive practical curriculum equivalent to 27 credit hours. It is intended to provide the student with those specific courses needed to meet some of the problems they encounter daily in their work environment. Admission requirements to the Certificate program are the same as for those students who seek admission to the Associate Degree program in General Business. However the Certificate program is primarily for those students who plan to attend the University for only one year or who have a need to take courses to upgrade certain knowledge and skills for their current or anticipated position. Candidates may be admitted as degree or non-degree students. Admission to the Certificate program must be approved by the Chairperson of the Community College at Purdue University North Central. Course selection is on the basis of a program prepared with the assigned academic faculty advisor in the General Business Program and is tailored to the needs of the individual. Courses taken to receive the Certificate will apply towards the Associate degree in General Business.

I. Required Courses

GBG 127	(Introduction to Business)	3
MA 110	(Business Mathematics)	3
STAT 114	(Elements of Probability and Statistics)	3
ENGL 101	(English Composition I)	3
ENGL 102	(English Composition II)	3
or		
GNT 220	(Technical Report Writing)	
GBG 126	(Personal Finance)	3
GBG 260	(Business Law)	3
		21 hours

II. Elective Courses (Any two of the following) 6 hours

COM 114 (Fundamentals of Speech Communication)
GBA 227 (Principles of Accounting I)

GBA 228	(Principles of Accounting II)	
GBG 235	(Data Processing in Business)	
GBG 270	(Ownership and Operation of Small Businesses)	
GBM 129	(Principles of Marketing)	
SPV 374	(Supervisory Management)	
	TOTAL	27 hours

COMPUTER TECHNOLOGY CERTIFICATE PROGRAM

Purdue University North Central offers a certificate program in Computer Technology for persons who have earned an associate degree or a baccalaureate degree and who want to develop expertise in computer programming. The certificate is available to students who:

1. have earned an associate or a baccalaureate degree from an accredited college or university,
2. have established credit in a mathematics course which is equivalent to MA 148,
3. have not received a degree in CPT, CIS, or CS.

This program will provide the practical applications of computer programs. These applications emphasize the design and implementation of the programs.

The program will provide a foundation of two basic programming languages: BASIC and COBOL. The program requires 27 semester credit hours of course work. Credit may be given for prior course work. A minimum of 21 credit hours must be Purdue University courses. Additional courses will be arranged by the academic advisor.

CPT Core Courses (15 hours required)

CPT 118	(Computers & Programming I)	3
CPT 154	(Introduction to Computer-based Systems)	3
CPT 165	(Introduction to COBOL)	3
CPT 224	(Commercial Systems Applications)	3
CPT 265	(COBOL Programming)	3
		15 hours

CPT Selectives (9 hours required)

CPT 261	(RPG Programming)	3
CPT 280	(Systems Analysis and Design Methods)	3
CPT 286	(Computer Operating Systems I)	3
CPT 365	(Topics in COBOL)	3
CPT 388	(Topics in Programming Language)	3
		9 hours

Selective as approved by advisor from one of the following disciplines: CPT, SPV, IET, MET, CIMT, EET, CS or MA	3
	3 hours
TOTAL	27 hours

Progression Requirements

A grade of C or better is required in each course. Courses in which lower grades have been received must be retaken before progressing to the next course in sequence. An incomplete is not considered a passing grade. The pass/not pass option is not available for this certificate program.

PROFESSIONAL SUPERVISION CERTIFICATE PROGRAM

The Professional Supervision Certificate Program is an intensive and practical curriculum equivalent to 36 semester hours. It is intended to provide first line supervisors with the professional education needed to handle the technical problems which they meet daily. Admission to the program is granted to those adults in management positions who meet certain entrance standards and requirements. Candidates may be admitted as degree or nondegree students. Specific questions concerning the program should be directed to the chairperson of the Technology and Engineering Section at the North Central Campus.

The program has been developed by representatives of industry, professional foremen organizations and the University. It is designed to meet the needs of management, which is vitally concerned with training first line supervisors. Course selection is on the basis of a program worked out with the academic advisor and is carefully tailored to individual needs.

REQUIRED COURSES
(9 credit hours)

(3) IET 104 (Industrial Organization)
(3) SPV 252 (Human Relations in Supervision)
(3) COM 114 (Fundamentals of Speech Communication)

CORE CURRICULUM
(6 credit hours)

Two of the following three courses are required in the basic core curriculum:

(3) SPV 240 (Labor Relations Problems)
(3) SPV 374 (Supervisory Management)
(3) SPV 431 (Occupational Safety and Health)

ELECTIVES
(9 credit hours)

Additional courses to make a total of 24 credit hours may be chosen in any approved combination.

MANAGEMENT EXPERIENCE
(Equivalent to 12 semester hours)

Before receiving the Professional Supervision Certificate, the candidate must have had two years of successful experience in the management field. This requirement is met by a confirming letter from the managerial employer under whom the candidate worked. Academic credit is not granted for this work but is considered equivalent to 12 semester hours of credit in the Professional Supervision Certificate Program.

OCCUPATIONAL CERTIFICATE PROGRAM IN MECHANICAL ENGINEERING TECHNOLOGY

This certificate program is designed to respond to regional industrial needs for upgrading engineering department personnel in specific technical areas. The individual who is working in an engineering or an engineering related area without benefit of a formal educational background will be brought to a high degree of specialization within a structured time period by utilizing only existing courses.

The program consists of a 24 hour course of instruction. Upon completion, the participant will be awarded an appropriate occupational certificate.

The program is divided into three segments:

I. Required Section (9 hours)

IET 104 (Industrial Organization)
TG 110 (Drafting Fundamentals)
MA 147 (Algebra and Trigonometry for Technology I)

II. Basic Section (6 hours)

Two courses which are considered as basic to the particular engineering technology used in the student's employment department. These are selected by the employing supervisor and a Purdue University North Central academic advisor with the understanding that all course prerequisites have been met.

III. Specialty Section (9 hours)

Three courses selected jointly by the student, the student's supervisor and the academic advisor to strengthen a particular technical engineering area. The courses in this section will be chosen to build upon knowledge and experience which the student has gained from other courses and from work experience.

The courses offered will be those 100 and 200 level appropriate for inclusion in an approved Mechanical Engineering Technology associate degree program. Certain 300 level courses approved for Purdue University North Central may also be elected.

DESCRIPTION OF COURSES

Agricultural Economics

AGEC 100. INTRODUCTORY AGRICULTURAL BUSINESS AND ECONOMICS. Class 3, cr. 3.

The role and characteristics of farm and off-farm agricultural business in our economy; introductory economic and business principles involved in successful organization, operation, and management.

Agronomy

AGRY 105. CROP PRODUCTION. Class 2, Lab. 2, cr. 3.

Fundamental principles of crop production and distribution. Emphasis is placed on applying technological advances in agronomy to active crop production situations, including basic soils, agricultural meteorology, and crop physiology and breeding.

AGRY 255. SOIL SCIENCE. Class 1, Rec. 1, Lab. 3, cr. 3. Prerequisite: one year college chemistry.

Differences in soils; soils genesis; physical, chemical, and biological properties of soils; relation of soils to problems of land use and pollution; soil management relative to tillage, erosion, drainage, moisture supply, temperature, aeration, fertility and plant nutrition. Introduction to fertilizer chemistry and use.

AGRY 320. GENETICS.

AGRY 320L. GENETICS LABORATORY. Please see BIOL 241/242, an approved alternative.

Animal Sciences

ANSC 101. ANIMAL AGRICULTURE. Class 3, cr. 3.

Importance of livestock in the field of agriculture, and the place of meats and other animal products in the human diet.

ANSC 221. INTRODUCTION TO ANIMAL NUTRITION. Class 3, cr. 3. Prerequisite: CHM 112 or equivalent.

Classification and function of nutrients, deficiency symptoms, digestive processes, characterization of feedstuffs, and formulation of diets for domestic animals.

Anthropology

ANTH 105. AN INTRODUCTION TO CULTURAL ANTHROPOLOGY. Class 3, cr. 3.

An introduction to the science of man and his works. Emphasis on the nature of culture and culture change; relationship of culture and personality. Attention given to the variations with the "universal" institutions of man: language, technology, the family, systems of social control, economics, warfare, religion, art, and values. Processes of invention, diffusion and acculturation; theoretical interpretations of the direction and process of cultural development.

Architectural Technology

ART 150. ARCHITECTURAL CONSTRUCTION I. Lab. 6, cr. 3 with outside assignments required. Prerequisite: TG 110.

A study of wood frame construction through a semester project requiring planning and working drawings. Field trips may be included.

ART 221. ARCHITECTURAL PRESENTATION. Lab. 6, cr. 2. Prerequisite: TG 110.

Introduction to techniques of presentation drawings and models of buildings. Exercises in freehand sketching, perspective drawing, shades and shadows, and use of color in renderings. Survey of the application of color in buildings, construction, and purpose of various types of architectural models.

ART 222. ARCHITECTURAL CONSTRUCTION II. Lab. 6 or 9, cr. 3. Prerequisite: ART 150.

Preparation of preliminary and working drawings for an intermediate-sized commercial or institutional building.

ART 299. ARCHITECTURAL TECHNOLOGY. Cr. 1-4.

Hours and subject matter to be arranged with staff. Course may be repeated up to nine hours.

Art and Design

A&D 201. ART FOR ELEMENTARY SCHOOL TEACHERS. Class 2, Studio 4, cr. 4.

Art theory and experiences, curriculum theory, and materials preparatory to instruction of elementary school children.

A&D 255. ART APPRECIATION. Class 3, cr. 3. Not open to freshmen.

Understanding and appreciation of the problems overcome by mankind in the origins and growth of art.

Biochemistry

BCHM 100. INTRODUCTION TO BIOCHEMISTRY. Class 2, cr. 2.

A survey of modern biochemistry using descriptions of contemporary experiments to illustrate the general theories and unifying concepts. Open to all students. No prerequisites.

Biological Sciences

BIOL 108. BIOLOGY OF PLANTS. Sem. 2, Class 3, Lab. 3, cr. 4. Required of all biology and agriculture majors. Satisfies School of Science laboratory science course requirement for science majors.

Introduction to the growth, functioning, structures, heredity, diversity of plants, and their interactions with the environment.

BIOL 109. BIOLOGY OF ANIMALS. Sem. 1, Class 3, Lab. 3, cr. 4. Required of all biology and agriculture majors. Satisfies School of Science laboratory science course requirement for science majors.

Introduction to the structure, functioning, heredity, development, classification, and evolution of animals, and their interactions with the environment.

BIOL 121 & 122. BIOLOGY I: DIVERSITY, ECOLOGY, BEHAVIOR. Please refer to BIOL 108, an approved alternative.

BIOL 131 & 132. BIOLOGY II: DEVELOPMENT, STRUCTURE, AND FUNCTION OF ORGANISMS. Please refer to BIOL 109, an approved alternative.

BIOL 195. SPECIAL ASSIGNMENTS. Sem. 1 and 2. SS. Cr. variable. Prerequisite: consent of instructor. May be repeated for credit.

Reading, discussions, written reports, seminar presentations, and field or laboratory work provided for enrichment in special areas of the biological sciences.

BIOL 203. HUMAN ANATOMY AND PHYSIOLOGY. Sem. 1. Class 2, Lab. 2, cr. 3.

A survey of normal structure and function of the human organism. The human is treated as an open system with the capacity to transport material, transform energy, and maintain a homeostatic state. The capacities and limitations of the human to cope with changes in the environment are emphasized. All major systems of the human body and their functions are examined in relation to the living organism. Integrated into the study of the human organism are laboratory exercises which emphasize the essentials of human anatomy and physiology.

BIOL 204. HUMAN ANATOMY AND PHYSIOLOGY. Sem, 2, Class 2, Lab. 2, cr. 3.

Continuation of BIOL 203.

BIOL 205. BIOLOGY FOR ELEMENTARY SCHOOL TEACHERS. Sem. 1, Class 2, Lab. 2, cr. 3. Does not satisfy requirements for School of Science majors.

Unifying concepts of biology taught with materials appropriate for future elementary school teachers.

BIOL 206. BIOLOGY FOR ELEMENTARY SCHOOL TEACHERS. Sem. 2, Class 2, Lab. 2, cr. 3. Does not satisfy requirements for School of Science majors.

Continuation of BIOL 205.

BIOL 211. THE SOCIAL IMPACT OF THE BIOLOGICAL SCIENCES. Sem. 1. Class 2, Dem. and Disc. 2, cr. 3. Does not satisfy requirements for School of Science majors.

An introduction to basic concepts, experimentation, and information found within the biological sciences. Emphasis is placed upon the role of biology within the social framework. Relationships between this discipline and common social problems are explored, including those which deal with conservation ecology.

BIOL 212. THE SOCIAL IMPACT OF THE BIOLOGICAL SCIENCES. Sem. 2. Class 2, Dem. and Disc. 2, cr. 3. Does not satisfy requirements for School of Science majors.

A continuation of BIOL 211. (It is useful but not essential for this course to be preceded by BIOL 211.)

BIOL 221. INTRODUCTION TO MICROBIOLOGY. Sem. 1 & 2. Class 3, Lab. 2, cr. 4. Prerequisites: one year of general chemistry and one semester of a life science. Does not satisfy requirements for biology majors at West Lafayette.

The isolation, growth, structure, function, heredity, identification, classification, and ecology of microorganisms, their role in nature and significance to man.

BIOL 231. BIOLOGY III: CELL STRUCTURE AND FUNCTION. Sem. 1. Class 3, cr. 3. Prerequisites: BIOL 108, 109; prerequisite or corequisite: CHM 116.

An introduction to the essentials of cell biology through an examination of the principles underlying the molecular and morphological bases for prokaryotic and eukaryotic cell structure and function.

BIOL 232. LABORATORY IN BIOLOGY III: CELL STRUCTURE AND FUNCTION. Sem. 1. Lab. 4, cr. 2. Must be preceded or accompanied by BIOL 231.

Laboratory exercises designed to illustrate the properties, functions, and growth of prokaryotic and eukaryotic cells and to introduce the student to modern experimental methods used to study cells and their separated components.

BIOL 241. BIOLOGY IV: GENETICS AND MOLECULAR BIOLOGY. Sem. 2. Class 3, cr. 3. Prerequisites: BIOL 108 and 109 and CHM 116; prerequisite or corequisite: one semester of organic chemistry.

Elementary genetics emphasizing the classical genetic principles of segregation, linkage, chromosome abnormalities, gene action, immunogenetics, blood groups, and population genetics. Topics in molecular biology include DNA structure, replication, mutation, repair, transcription, translation, and regulation.

BIOL 242. LABORATORY IN BIOLOGY IV: GENETICS AND MOLECULAR BIOLOGY. Sem. 2. Lab. 4, cr. 2. Must be preceded or accompanied by BIOL 241.

Laboratory experiments in classical, molecular, and bacterial genetics will be offered. Exercises will also be performed in the areas of human and population genetics.

BIOL 295. SPECIAL ASSIGNMENTS. Sem. 1 and 2. SS. Cr. variable. Prerequisite: consent of instructor. May be repeated for credit.

Reading, discussions, written reports, or laboratory work selected for enrichment in special areas of the biological sciences.

BIOL 301. HUMAN DESIGN: ANATOMY AND PHYSIOLOGY. Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisites: one year of life science and one year of general chemistry. Designed for nursing and pharmacy students. Does not satisfy requirements for biology majors at West Lafayette.

A systems analysis of human physiology emphasizing regulation of the internal environment by homeostatic mechanisms. Relevant aspects of human anatomy, histology, and pathophysiology, as well as examples from current medical practice are integrated into the study of normal physiological principles. Topics covered include histophysiology of cells and tissues, nerve and muscle physiology, the nervous system, and cardiovascular dynamics.

BIOL 302. HUMAN DESIGN: ANATOMY AND PHYSIOLOGY. Sem. 2. Class 2, Lab. 2, cr. 3.

A continuation of BIOL 301. Topics covered include: endocrine systems, immunity, renal function, respiration, the gastrointestinal system, exercise physiology, and reproduction.

BIOL 495. SPECIAL ASSIGNMENTS. Sem. 1 and 2. SS. Cr. variable. Prerequisite: consent of instructor.

Reading, discussions, written reports, seminar presentations, and field or laboratory work provided for enrichment in special areas of the biological sciences. May be repeated for credit.

Bridge Program

GNC 065. PLANE GEOMETRY. Class 3, cr. 3. Prerequisite: MA 111.

Review of high school geometry with emphasis on problem solving. This course satisfies the one unit of geometry required for admission.

GNC 070. REVIEW OF BASIC ENGLISH. Class 3, Lab. 2, cr. 3.

A review of the fundamental elements of the sentence. Basic grammar, punctuation, diction, and spelling as they pertain to written sentences are the areas of concentration. Workbook exercises, including sentence combining, and quizzes are regular components of the course. By the end of the semester students are asked to write individual coherent paragraphs. (Offered only on a Pass/Not Pass basis.)

GNC 071. READING ENHANCEMENT PROGRAM. Class 2, Lab. 2, cr. 3.

This course helps students improve their ability to get meaning from written material. Comprehension, concentration, critical reading, vocabulary building and reading speed are the areas of focus for improvement. (Offered only on a Pass/Not Pass basis.)

GNC 100. STUDY SKILLS. Class 3, cr. 3.

Procedures and practices for the development of good study habits. Includes techniques for better listening, note-taking, textbook reading, time-budgeting, and writing themes and reports.

GNC 101. TESTING, SELF-ANALYSIS, AND COUNSELING. Class 3, cr. 3.

Students take, score, and analyze results of selected objective tests. Each student will develop a profile of himself based on what he learns from the tests. Course is designed to help students determine their career objectives.

GNC 160. ARITHMETIC AND FUNDAMENTALS OF ALGEBRA. Class 3, Lab. 2, cr, 3.

Review of arithmetic and introduction to elements of high school algebra. Extensive use of word problems to teach basic concepts.

GNC 260. ALGEBRA AND FUNDAMENTALS OF GEOMETRY. Class 3, Lab. 2, cr. 3. Prerequisite: GNC 160.

Continuation of GNC 160 with emphasis on geometry.

Building Construction and Contracting

UNDERGRADUATE LEVEL

Lower-Division Courses

BC 100. INTRODUCTION TO CONSTRUCTION. Class 2, cr. 2.

A survey course of the construction industry, its educational programs, jobs and major building materials.

BC 170. PLANS AND SPECIFICATIONS. Lab. 4, cr. 2.

Reading and interpretation of the contract documents for construction. Emphasis is on the plans and specifications for a variety of structures.

BC 190. CONSTRUCTION EXPERIENCE I. Cr. 1.

Minimum of ten weeks of practical work experience in construction is required. Written and/or oral reports of this experience are required.

BC 195. CONSTRUCTION OBSERVATION. Lab. 2, cr. 1.

Directed observation and inspection of construction work in progress on or near the campus. May be repeated twice.

BC 230. MECHANICAL AND ELECTRICAL SYSTEMS. Class 3, cr. 3.

A survey of systems for the supply and drainage of water, the heating and cooling of buildings, and the electrical power and lighting for buildings.

BC 235. CONSTRUCTION MATERIALS AND SYSTEMS. Class 3, cr. 3. Prerequisite: ART 222 or 150 and BC 170.

An advanced study of materials and structural systems used in buildings. The study of materials includes their properties, characteristics, design parameters and applications. A study of structures, superstructures, special structures and construction features.

BC 270. MATERIALS AND ESTIMATES. Class 3, cr. 3. Prerequisite: BC 170.

A study of methods to estimate quantities of materials required in construction. Practice in making quantity surveys. Introduction to estimating labor and costs.

BC 345. SCHEDULING. Class 2, Lab. 2, cr. 3. Prerequisite: CS 200 or equivalent.

A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on CPM scheduling.

BC 350. FIELD OPERATIONS. Class 3, cr. 3.

A study of selected field operations including both equipment-intensive and labor-intensive tasks. The selection and management of equipment are emphasized.

BC 375. BIDDING. Class 2, Lab. 4, cr. 3. Prerequisite: BC 270.

A study of bidding procedures in the construction industry. Practice in the compilation of complete bids.

Business

ACCOUNTING

GBA 227. PRINCIPLES OF ACCOUNTING I. Class 3, cr. 3.

Introductory accounting includes the basic language, principles, and procedures of accounting. Emphasis on recording, classifying, and summarizing accounting data for financial statement reporting and analysis.

GBA 228. PRINCIPLES OF ACCOUNTING II. Class 3, cr. 3. Prerequisite: GBA 227 or equivalent.

Continuation of GBA 227 with emphasis on accounting for partnerships, corporations, and analysis of financial statements. Accounting for manufacturing firms, managerial controls and cost determination are included.

GBA 230. COST ACCOUNTING. Class 3, cr. 3. Prerequisite: GBA 228 or equivalent.

Uses of accounting data, job order and process cost accounting for planning and control, decision making, and inventory valuation. Also included are the analysis of standard cost variances, direct costing, operations budgeting, and capital budgeting.

GBA 240. INTERMEDIATE ACCOUNTING I. Class 3, cr. 3. Prerequisite: GBA 228 or equivalent.

An in-depth study of accounting theory and concepts and an analysis of the problems that arise in applying these underlying concepts to financial accounting. Earlier courses emphasize "how" when the emphasis in this course is "why". Detailed study of financial statements.

GBA 241. INTERMEDIATE ACCOUNTING II. Class 3, cr. 3. Prerequisite: GBA 240 or equivalent.

Continuation of GBA 240. Particular attention is centered on the special problems peculiar to corporate organization.

GBA 270. PRINCIPLES OF TAX PREPARATION. Class 3, cr. 3.

Federal taxes as they apply to the individual and to the business. Considerable emphasis upon the individual return and basic tax concepts and to familiarize students with frequently used tax forms.

GBA 290. INDEPENDENT STUDY. Cr. 1-6.

Hours and subject matter to be arranged with General Business Department.

GBA 371. ADVANCED ACCOUNTING. Class 3, cr. 3. Prerequisite: GBA 241 or equivalent.

Special accounting problems for partnerships, business combinations and consolidated financial statements. Also covered are interim financial statements and financial forecasting.

GBA 372. AUDITING. Class 3, cr. 3. Prerequisite: GBA 241.

Principles, practices, and procedures used to determine accuracy and reliability of financial records and financial statements. Included are auditing standards, legal and ethical responsibilities.

GBA 375. GOVERNMENTAL ACCOUNTING. Class 3, cr. 3.

Fund accounting for non-profit seeking entities; municipal and federal governments, schools, and hospitals. Topics include accounting for governmental units, general funds, revenue, expenditures, assets, liabilities, capital outlay, debt retirement, trust and agency, special assessments, general fixed asset and bond indebtedness groups. Recommended for those planning to take the C.P.A. examination.

GENERAL BUSINESS

GBG 126. PERSONAL FINANCE. Class 3, cr. 3.

Course emphasizes the management of the individual's personal resources. Major topics include personal budgeting, use of credit, purchase of major consumer items, consumer legislation, insurance, estate planning and investments. Emphasis is placed on proper use of credit as well as impact of inflation and taxes on the purchasing power of personal resources.

GBG 127. INTRODUCTION TO BUSINESS. Class 3, cr. 3.

An introductory course which acquaints students with existing operations and problems of business and industry. Course includes the role of business as well as specific topics pertaining to establishing, operating, and managing a business.

GBG 224. ADMINISTRATIVE OFFICE PROCEDURES. Class 3, cr. 3.

A survey of the general operations, work flow, methods, procedures, equipment, and costs of an administrative office of an organization. The course content includes an understanding of the necessary requirements for an efficient operation of both the small administrative office and/or a section of a larger administrative unit.

GBG 235. DATA PROCESSING IN BUSINESS. Class 3, cr. 3.

An introduction to basic methods, techniques, and systems of electronic data processing; includes writing of simple programs and discussion of the use of computers in business organizations and management.

GBG 250. PRINCIPLES OF BUSINESS BUDGETING. Class 3, cr. 3.

A survey of general budgetary operations in a business organization. The course content includes an understanding of the various types of budgets, capital and operating budgets, expenditures, use of budgets to control operations and relationship of budgets to the accounting function.

GBG 260. BUSINESS LAW. Class 3, cr. 3.

A course designed to give students an understanding of laws covering business transactions. Course covers uniform commercial code, contracts, negotiable instruments, and sales of personal and real property. The laws governing partnerships, corporations, and individual entrepreneur are included.

GBG 270. OWNERSHIP AND OPERATION OF SMALL BUSINESS. Class 3, cr. 3.

A study of the basic principles of business operations associated with starting and managing small businesses. Major emphasis is given to strategic planning, organization, direction, and control of the small business. Topics will include marketing, financing, and franchising techniques.

GBG 290. INDEPENDENT STUDY. Cr. 1-6.

Hours and subject matter to be arranged with General Business Department.

MARKETING

GBM 129. PRINCIPLES OF MARKETING. Class 3, cr. 3.

An analysis of marketing principles that covers both the essential functions that must be performed in marketing and the numerous and varied types of organizations performing the role of marketing.

GBM 280. SELLING: PRINCIPLES AND PRACTICES. Class 3, cr. 3.

An introductory course which explores a career in selling and the basic skills involved to prepare for an entry level position in selling. Course also covers the role of selling in the business organization.

GBM 281. PRINCIPLES OF ADVERTISING. Class 3, cr. 3.

An introductory course which covers the fundamental principles of advertising. Course familiarizes students with strategic, managerial, creative and financial elements of advertising.

GBM 288. PRINCIPLES OF RETAILING. Class 3, cr. 3.

Course will cover types of institutions, store location, layout, fixtures and equipment, store organization, and retail sales. Prices, discounts, mark-up, mark-down, and other problems of sales and merchandising are included.

GBM 289. MARKETING SEMINAR. Class 3, cr. 3. Prerequisite: GBA 129.

Case studies of marketing problems, discussion of problems encountered in on-the-job training plus guest lecturers from marketing management.

GBM 290. INDEPENDENT STUDY. Cr. 1-6.

Hours and subject matter to be arranged with General Business Department.

Chemistry

CHM 111. GENERAL CHEMISTRY. Sem. 1. Class 2, Lab. 3, cr. 3. Required of all freshmen in the School of Agriculture who are not in CHM 109, 115, or 125; required of students in the School of Consumer and Family Sciences in Retailing, Textile, RHI, and Dietetics options who are not in CHM 115; required of students in Physical Therapy who are not in CHM 115. Prerequisite: two years of high school algebra. Does not carry credit toward graduation in the School of Science.

Metric and S.I. Units; dimensional analysis; density, the atomic concept, elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure; spectra; the periodic table; chemical bonding; gases, descriptive chemistry of the common elements.

CHM 112. GENERAL CHEMISTRY. Sem. 2. Class 2, Lab. 3, cr. 3. Prerequisite: CHM 111 or equivalent. Does not carry credit toward graduation in the School of Science.

Continuation of CHM 111. Liquids and solids; solutions; chemical kinetics; equilibrium; acids and bases; oxidation and reduction; electrochemistry; descriptive chemistry of the metals and the non-metals; introduction to organic chemistry; nuclear chemistry.

CHM 115. GENERAL CHEMISTRY. Sem. 1. Class 3, Lab. 3, cr. 4. Required of students majoring in biology, chemistry, and physics and some students in engineering.

Stoichiometry; atomic structure; periodic properties; ionic and covalent bonding; molecular geometry; gases, liquids, and solids; crystal structure; thermochemistry; descriptive chemistry of metals and non-metals.

CHM 116. GENERAL CHEMISTRY. Sem. 2. Class 3, Lab. 3, cr. 4. Prerequisite: CHM 115 or equivalent.

A continuation of CHM 115. Solutions; quantitative equilibria in aqueous solution; introductory thermodynamics; oxidation-reduction and electrochemistry; chemical kinetics; qualitative analysis; further descriptive chemistry of metals and non-metals.

CHM 119. GENERAL CHEMISTRY. Class 2, Lab. 3, cr. 3.

A survey of general chemistry with emphasis on topics of importance to biology.

CHM 224. INTRODUCTORY QUANTITATIVE ANALYSIS. Class 3, Lab. 4, cr. 4. Prerequisite: CHM 112 or 116.

Introduction to titrimetric, gravimetric, and instrumental methods of analysis. Required of students in biology or the pre-professional program who do not take CHM 321. Offered according to demand.

CHM 255. ORGANIC CHEMISTRY. Sem. 1. Class 3, cr. 3. Prerequisite: CHM 110, 112, or 116; recommended for biology majors.

A study of aliphatic and aromatic hydrocarbons and their simple derivatives in terms of (a) structure, bonding, etc.; (b) general syntheses and reactions; and (c) a logical modern rationale for fundamental phenomena as supported by reactivity orders, orientation effects, stereochemistry, and relative rates.

CHM 225L. ORGANIC CHEMISTRY LABORATORY. Sem. 1. Lab. 3, cr. 1. Prerequisite or corequisite: CHM 255.

Laboratory experiments to accompany CHM 255 illustrating methods of separation and the more common techniques and methods for preparing various types of organic compounds.

CHM 256. ORGANIC CHEMISTRY. Sem. 2. Class 3, cr. 3. Prerequisite: CHM 255 or equivalent.

A continuation of CHM 255 with various functional groups such as the carboxyl, car-

bonyl, amino, etc., and including such polyfunctional natural products as carbohydrates and peptides.

CHM 256L. ORGANIC CHEMISTRY LABORATORY. Sem. 2. Lab. 3, cr. 1. Prerequisite or corequisite: CHM 256.

A continuation of CHM 255L, but emphasizing methods for identifying organic compounds, including simple "unknowns"

Civil Engineering Technology

CET 104. ELEMENTARY SURVEYING. Class 2, Lab. 3, cr. 3. Prerequisite or corequisite: MA 147 or equivalent.

Measurement of distances, directions and angles, using the tape, level, compass, and transit. Computation of areas and traverses, lines and grades.

CET 160. STATICS. Class 3, cr. 3. Prerequisite: MA 154 or equivalent.

A study of forces acting on bodies at rest, including coplaner and noncoplaner forces, concurrent and nonconcurrent forces, friction forces, and hydrostatic forces. Centroids and moments of inertia are included. Practice in use of the slide rule will be included.

CET 208. ROUTE SURVEYING. Class 1, Lab. 3, cr. 2. Prerequisite: CET 104.

Preliminary and construction surveys for highways and railroads, including simple, compound, reverse, and easement curves, superelevation of curves, profiles, grade lines, slope stakes, yardage estimates, and mass and haul diagrams.

CET 209. LAND SURVEYING AND SUBDIVISION. Class 1, Lab. 6, cr. 3. Prerequisite: CET 104.

Theory and practice of land surveying, subdivision, filing and recording deeds, United States governmental survey of public lands, laws of land surveying, descriptions and area computations for land surveys. Subdivision planning, calculations and plotting, water main layouts, storm and sanitary sewer calculations and layouts. Street plans and profiles.

CET 253. HYDRAULICS AND DRAINAGE. Class 3, cr. 3. Prerequisites: MA 147, 148.

Basic hydrostatics, Bernouilli's equation, flow in water and sewer lines, overland and ditch drainage, and culvert size determination.

CET 260. STRENGTH OF MATERIALS. Class 3, cr. 3. Prerequisite: CET 160.

Study of stress-strain relationships, shear and bending moment diagrams, stresses and deflections of beams, axial loads, and combined stresses. Applied problems in the field of structural design.

CET 280. STRUCTURAL CALCULATIONS. Class 3, cr. 3. Prerequisite: CET 260.

Practice in the calculation of loads, reactions, shear, and moment for determinate structures. Introduction to indeterminate structures with emphasis on moment-distribution.

CET 299. CIVIL ENGINEERING TECHNOLOGY. Cr. 1-4.

Hours to be arranged with the staff. Primarily for third and fourth semester students. Subject matter to be assigned by the staff.

Communication

COM 114. FUNDAMENTALS OF SPEECH COMMUNICATION. Class 3, cr. 3.

A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication and small group process, through problem identification and solution in discussion, to informative and persuasive speaking in standard speaker-audience situations.

COM 204. REASONING AND INQUIRY IN COMMUNICATION. Class 3, cr. 3.

A study of the nature of inquiry in human communication and the reasoning processes which relate to it.

COM 212. APPROACHES TO THE STUDY OF INTERPERSONAL COMMUNICATION. Class 3, cr. 3.

A study of basic characteristics of human communication and the theoretical and practical implications of these characteristics for various forms of oral communication.

COM 240. INTRODUCTION TO ORAL INTERPRETATION. Class 3, cr. 3. Prerequisite: COM 114.

Oral interpretation of prose, poetry, and dramatic dialogue based on careful study of meaning and emotional content.

COM 250. MASS COMMUNICATION AND SOCIETY. Class 3, cr. 3.

A survey of the print, broadcast, and film media in their relationship and influence on society. Study topics include: mass communication theories, documentaries, commercialism, news media, media effects and control, feedback, educational broadcasting, and audience analysis.

COM 251. INTRODUCTION TO THE ELECTRONIC MASS MEDIA. Class 3, cr. 3.

A study of the ways in which ideas are expressed through techniques unique to the language of radio, television, and film. The course focuses on the scenes, camera and lens movement, tempo, editing concepts, montage, sound perspective, fades, segues, and other special effects prerequisite to effective communication through electronic media.

COM 252. JOURNALISTIC WRITING. Class 2, Lab. 2, cr. 3. Prerequisites: COM 250 and consent of instructor.

Journalistic writing for print media. Emphasis is on style, news values, and story construction. Extensive practice in writing various types of news stories.

COM 315. SPEECH COMMUNICATION OF TECHNICAL INFORMATION. Class 3, cr. 3. Prerequisite: COM 114. Open only to students enrolled in the School of Technology.

The organization and presentation of information of a practical technical nature. Emphasis is placed upon the study, preparation, and use of audio-visual materials in such presentations.

COM 318. PRINCIPLES OF PERSUASION. Class 3, cr. 3. Prerequisite: COM 114 or consent of instructor.

Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classical and modern approaches. Both theoretical and pragmatic considerations are introduced.

COM 320. SMALL GROUP DISCUSSION. Class 3, cr. 3. Prerequisite: COM 114.

A study of group thinking and problem-solving methods; participation in and evaluation of committee and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators.

COM 330. THEORIES OF MASS COMMUNICATION. Class 3, cr. 3.

An examination of mass communication theories and theorists. Readings and discussion of McLuhan, Lippman, DeFleur, Lazarsfeld, Schramm, Stephenson, and other significant contributors.

COM 357. HIGH SCHOOL PUBLICATIONS. Class 3, cr. 3.

Study of the functions, mechanics, and writing techniques of high school newspapers and yearbooks. A survey of editorial, business, and production aspects of student publications with some news writing assignments. Instruction in teaching high school journalism. Recommended for prospective teachers of English.

COM 415. DISCUSSION OF TECHNICAL PROBLEMS. Class 3, cr. 3. Open only to students in the School of Technology.

Principles of speech communication related to interpersonal and group discussions on technical topics and problems; practice in using these modes in situations typically encountered by the technologies.

COM 490. INTERNSHIP IN COMMUNICATION. Class 1-6, exper. 5-8, cr. 1-6. Prerequisite: COM 114, first course in area, and consent of instructor. May be repeated for up to six hours of credit.

Experiential, supervised training in public relations, journalism, telecommunication, oral interpretation, speech education, organizational communication, or public communication. Taken in junior or senior year. Usually gives 2 credits per internship experience. Up to 6 credits can be used toward graduation.

COM 491. SPECIAL TOPICS IN COMMUNICATION. Cr. 1-3. Admission by consent of instructor only. May be repeated for up to six hours of credit.

Intensive study of selected topics, varying from semester to semester, from the literature or practice of communication. Course content will be drawn from areas not dealt with in the regular curriculum and may include such topics as photojournalism, economic reporting, and campaign communication.

DUAL LEVEL
Undergraduate/Graduate Courses

COM 590. DIRECTED STUDY OF SPECIAL PROBLEMS. Cr. 1-3. Admission by consent of instructor only. May be repeated for credit.

Computer Sciences

CS 110. INTRODUCTION TO COMPUTERS. Class 3, cr. 3

Introduction to basic methods, techniques, and systems of electronic data processing; includes writing simple programs and the discussion of the use of the computer in various subject matter applications.

CS 140. INTRODUCTION TO DATA PROCESSING (BASIC). Class 3, cr. 3. Corequisite: MA 147. Not available for credit toward graduation in the School of Science. CS 140 and 145 may not both be taken for credit. Intended for students who expect to use computers outside the physical sciences and engineering.

Introduction to the BASIC programming language. Use of library routines and functions. A survey of the application of computers to problems in business and industry.

CS 145. INTRODUCTION TO DATA PROCESSING (FORTRAN). Class 3, cr. 3. Corequisite: MA 153. Not available for credit toward graduation in the School of Science. CS 140 and 145 may not both be taken for credit. Intended for students who expect to use computers outside the physical sciences and engineering.

Introduction to the FORTRAN programming language. Use of library routines and functions. A survey of the application of computers to problems in business and industry.

CS 220. PROGRAMMING I FOR ENGINEERS AND SCIENTISTS. Class 3, cr. 3. Prerequisite: one semester of mathematics beyond MA 154.

Introduction to the intuitive notion of an algorithm; representation of algorithms in narrative form as flow charts and as computer programs; general structure of computers; computer experience using a procedure-oriented language in programming algorithms such as those used in elementary numerical calculations, sorting, simulation of a random process and symbol manipulation; definition and use of functions, subroutines and iterative procedures; survey of a variety of significant uses of computers.

CS 380. INTRODUCTION TO DATA MANAGEMENT. Class 3, cr. 3. Prerequisite: CS 220.

Introduction to basic concepts of file organization and retrieval of data from magnetic tape and disc storage media; internal and external sorting techniques for tape and disc resident data files; introduction to the COBOL programming language; illustrative problems from business data processing.

Computer-Integrated Manufacturing Technology

CIMT 243. AUTOMATED MANUFACTURING PROCESSES. Class 2, Lab. 2, cr. 3. Prerequisite: MET 242.

The study of automatic turning machines, machining centers, punching machines, and transfer machines, with an introduction to programming tape and computer controlled machines and inspection and quality control procedures.

CIMT 299. COMPUTER-INTEGRATED MANUFACTURING TECHNOLOGY. Class 0-3, Lab. 2-6, cr. 1-6.

Hours and subject matter to be arranged by instructor and approved by the CIMT curriculum committee. Primarily for third- and fourth-semester students with special interests.

Computer Technology

CPT 118. COMPUTERS AND PROGRAMMING I. Class 3, Lab. 0-2, cr. 3.

An introduction to fundamentals of computer programming. Computer experience, using a high-level language (BASIC). Proper programming techniques: solution planning, functional decomposition, algorithm formulation using restricted control structures, coding with style, testing, debugging, and documenting. The laboratory hours are intended to help students with little or no prior programming experience.

CPT 154. INTRODUCTION TO COMPUTER-BASED SYSTEMS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3.

An overview of computer information systems. Introduction to computer hardware, software, procedures, systems, and human resources. Integrated application of computer systems into business and society. Introduction to trends in computer-based information systems.

CPT 165. INTRODUCTION TO COBOL. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: CPT 118.

An introduction to computer problem solving in the COBOL environment using structured program design techniques. Emphasis on a minimal subset of the COBOL programming language syntax used in report generation, control break processing, table processing, and sequential file processing applications.

CPT 175. COMPUTER FUNDAMENTALS AND PROGRAMMING FOR TECHNOLOGY. Class 1-3, cr. 1-3. Prerequisite: MA 153. Not available for credit to computer technology majors.

An introduction to fundamental concepts of computer organization, software packages, and computer programming. Emphasis on structured programming and disciplined programming style. Applications appropriate to students in the School of Technology. Offered in different versions according to programming language taught.

CPT 186. HARDWARE AND SOFTWARE FUNDAMENTALS. Class 3, cr. 3. Prerequisite: CPT 118 or equivalent.

A survey of the technology related to computer systems with emphasis on the relationships between hardware architecture, system software, and applications software. The architecture of processors and storage systems are explored. Introduction to assembly language programming and operating systems.

CPT 198. DATA PROCESSING PRACTICE I. Cr. 1.

Practice in industry with written reports of this practice for co-op students. May be repeated three times.

CPT 224. COMMERCIAL SYSTEMS APPLICATIONS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: CPT 154.

Introduction to commercial data processing principles and practices. Survey of computer applications, especially microcomputers in business. Innovative case studies, guest lectures. Application mini-projects using microcomputers are required.

CPT 261. RPG PROGRAMMING. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3.

Computer programming using RPG II - Report Program Generator. Students write, process, and debug programs using the computer.

CPT 265. COBOL PROGRAMMING. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisite: CPT 165.

Continuation of COBOL training. Emphasis on program design strategies, indexed and direct access file processing, variable-length records, data editing, program testing, sorting, merging, and interactive processing. Team programming project may be required.

CPT 275. SOFTWARE CONCEPTS AND HARDWARE ORGANIZATION. Class 3, cr. 3. Prerequisite: CPT 175. Not available for credit to computer technology majors.

Assembly language programming on a popular mainframe or microcomputer. Internal architecture of computer and software fundamentals. Applications to technology.

CPT 280. SYSTEMS ANALYSIS AND DESIGN METHODS. Class 2-4, Lab. 0-3, cr. 3-5. Prerequisites: CPT 265 and CPT 224. Instructor's permission may also be required.

Overview of the system development life cycle. Emphasis on system documentation through the use of both classical and structured tools and techniques for describing process flows, data flows, data structure, file designs, input/output designs, and program specifications. Applications to entry-level design project.

CPT 286. COMPUTER OPERATING SYSTEMS I. Class 3, cr. 3. Prerequisite: CPT 165.

An introduction to the computer operating system from a user point of view. Topics include utility programs, job control languages, program supervisors, loaders, linkage editors, time sharing.

CPT 290. COMPUTER PROJECT. Cr. 1-4.

Independent study for sophomore students who desire to execute a complete computer-oriented project. Course may be repeated for credit up to six hours.

CPT 294. COMPUTER SEMINAR. Class 2, cr. 1. Prerequisite: An introductory computer course.

Current problems and issues in the computer field. Field trips are required.

CPT 299. COMPUTER TECHNOLOGY. Cr. 1-4. May be repeated for credit up to nine hours.

Hours and credit to be arranged. Primarily for students who desire to execute a project from start to finish on the computer.

CPT 365. TOPICS IN COBOL. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: CPT 265. Credit cannot be established in both CPT 365 and CPT 388.

Advanced programming topics and skills. Emphasis upon development of maintainable programs, maintenance of existing programs, test data development, module and program testing strategies, interactive programming, and other advanced professional topics using COBOL. Large, team programming project required.

CPT 388. TOPICS IN PROGRAMMING LANGUAGES. (variable title) Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: CPT 265. Credit cannot be established in both CPT 365 and CPT 388.

Advanced programming topics and skills. Emphasis upon development of maintainable programs, maintenance of existing programs, test file development, module and program testing strategies, interactive programming, and other advanced professional topics using a procedural language other than BASIC or COBOL. Large, team programming project required.

Economics

ECON 210. PRINCIPLES OF ECONOMICS. Class 3, cr. 3.

Study of the basic economic institutions and the role they play in defining and achieving the nation's economic goals. Emphasis will be placed on the interdependent nature of the economy and the effects of economic decisions on the individual and society.

ECON 251. MICROECONOMICS. Class 3, cr. 3.

Price theory and resource allocation. Emphasis is on developing a detailed understanding of the principles of microeconomic analysis and their application to understanding price and market behavior.

ECON 252. MACROECONOMICS. Class 3, cr. 3. Prerequisite: ECON 210 or 251.

Determination of macroeconomic variables. National income and employment. Money and banking. Interest rates and financial markets. Inflation and balance-of-payments problems. The role of monetary and fiscal policy in achieving macroeconomic goals.

ECON 352. INTERMEDIATE MACROECONOMICS. Class 3, cr. 3. Prerequisites: ECON 210, 251.

Macroeconomic behavior. The determinates of consumption, investment, and the aggregate demand for assets. The joint determination of income, the price level, and the rate of interest. The role of government. Elements of economic growth.

Education

UNDERGRADUATE LEVEL

Lower-Division Courses

ED 150. PERSONAL GROWTH AND DEVELOPMENT. Class 3, cr. 3.

An experiential learning approach to interpersonal communications and such developmental issues as autonomy, identity, values clarification, intimacy and career-life goals. Emphasis is upon active participation in small group discussion and cognitive mastery of personal and interpersonal dynamics.

ED 249. INTRODUCTION TO ELEMENTARY AND/OR SECONDARY EDUCATION. Class 1, Lab. 3, cr. 2. May be repeated for credit.

Provides career guidance experiences for those considering teaching careers. Includes field experience in an elementary or secondary classroom plus class discussions of issues such as school organization, curriculum, certification requirements, and teaching skills.

ED 285. EDUCATIONAL PSYCHOLOGY. Class 2, Lab. 2, cr. 3. Prerequisite: ED 249. Nonteaching majors are excepted from this prerequisite.

This course is designed to develop understanding of the psychological processes of learning and instruction in a variety of learning environments. Learning theory, instructional models and strategies, principles of motivation and reinforcement, and methods of assessing learning outcomes are emphasized.

UNDERGRADUATE LEVEL
Upper-Division Courses

ED 320. TEACHING THE LANGUAGE ARTS IN THE ELEMENTARY SCHOOL.† Class 3, cr. 3.

Materials and methods of teaching oral and written language, listening, spelling, and handwriting in the elementary school.

ED 321. TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL.† Class 3, cr. 3. Prerequisites: MA 133, 134, ED 249, 285.

Materials and methods used in teaching mathematics at various grade levels in the elementary school.

ED 322. TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL.† Class 3, cr. 3.

Curriculum principles and objectives, organization of materials, instruction techniques, and evaluation procedures.

ED 323. TEACHING OF SCIENCE IN THE ELEMENTARY SCHOOL CURRICULUM.† Class 3, cr. 3.

Provides experiences in developing skills for teaching science as well as the understanding of appropriate subject matter; includes evaluation techniques and procedures.

ED 324. MUSIC FOR ELEMENTARY SCHOOL TEACHERS.† Class 3, cr. 3.

Basic musical experience, including elementary music skills. Principles and procedures of teaching music. Relationship of music to other subject areas. Music materials.

ED 326. TEACHING READING IN THE ELEMENTARY SCHOOL.† Class 3, cr. 3.

Methods and materials for teaching reading in the elementary school.

ED 327. CORRECTIVE READING FOR THE CLASSROOM TEACHER.† Class 2, Lab. 3, cr. 3. Prerequisites: ED 285, 326, 385.

Classroom procedures for the identification of reading difficulties; selection and application of appropriate methods and materials to provide corrective treatment.

ED 380. MEDIA FOR CHILDREN. Class 3, cr. 3.

Books, films, filmstrips, records, magazines, and other resources provided in elementary media centers are studied and evaluated to meet the personal and educational needs of pupils in elementary schools. Emphasis is on wide reading of children's books and viewing of many media and their utilization with children.

ED 385. CHILD BEHAVIOR IN THE ELEMENTARY SCHOOL. Class 2, cr. 2. Prerequisite: ED 285 or consent of instructor.

Presents methods of collecting and using information about the behavior and development of children in the elementary school.

ED 424. SUPERVISED TEACHING.† †† Cr. 8-9. Prerequisites: ED 249, 285, admittance to teacher education.

Teaching full-time in a school classroom under the supervision of the teacher in charge of the class and a University supervisor.

ED 480. SOCIAL AND PHILOSOPHICAL FOUNDATIONS OF EDUCATION.† Class 3, cr. 3.

Introduction to the social forces, philosophical thought, and legal principles upon which American education is based, including community structure; the organization and administration of public schools; American ideals and conflicts in relation to the schools; the interaction between education and social change; and the legal status, rights, and responsibilities of teachers.

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† Prerequisite: admission to the elementary education curriculum.

†† STUDENT TEACHER APPLICATION REQUIRED BEFORE ENROLLMENT.

DUAL LEVEL

ED 500. HISTORY AND PHILOSOPHY OF EDUCATION. Class 3, cr. 3. May be repeated for credit.

Consideration of the major ideas, trends, and movements in the development of education. This course will be taught under three separate topics as follows: (1) History of Western Education, (2) History of American Education, and (3) Philosophy of American Education. Students may enroll for more than one section.

ED 522. READING IN MIDDLE AND SECONDARY SCHOOLS. Class 3, cr. 3. Prerequisite: 12 hours of education and psychology. May be taken as part of the sequence leading to reading specialist or for the junior high school endorsement program.

A course designed for teachers and prospective teachers in subject matter areas of the junior and senior high school. Surveys of techniques and objectives of reading instruction in the schools with special attention to the opportunities and obligations to teach reading within content areas. Teaching experience helpful but not required.

ED 523. INTRODUCTION TO MEASUREMENT AND EVALUATION. Class 3, cr. 3.

An introduction to the basic concepts and principles of measurement and evaluation, with special emphasis on descriptive statistics, and teacher-made and standardized tests.

ED 530. ADVANCED EDUCATIONAL PSYCHOLOGY. Class 3, cr. 3. Prerequisite: ED 285.

Theories of learning and development, research on instruction and learning, and principles of measurement applied to educational problems.

ED 570. MEDIA FOR EDUCATION AND TRAINING. Class 1-3, cr. 1-3.

Selection, utilization, and evaluation of instructional media and technologies of instruction used in formal education and business/industrial training with emphasis on systematic planning for the use of media.

ED 571. PREPARATION OF INSTRUCTIONAL MATERIALS. Class 1, Lab. 4, cr. 3.

Design and preparation of a variety of instructional materials for use by instructional materials specialists, teachers, librarians, and A-V coordinators in educational situations. Laboratory practice is provided in production of these materials.

ED 573. MICROCOMPUTER APPLICATIONS FOR EDUCATION AND TRAINING. Class 2, Lab. 2, cr. 3.

Applications of microcomputers in educational and training settings. Course stresses appraisal, utilization, and evaluation of microcomputer software and hardware. Implementation and management of computers in instructional environments. Teaching of basic computer literacy concepts to learners of all ages.

ED 575. COMPUTER-ASSISTED INSTRUCTION. Class 3, cr. 3. Prerequisites: ED 530 and either ED 475, 573, or equivalent, or consent of instructor.

Examines aspects of computer assisted instruction. Primary focus upon application of effective learning design strategies for computer mediated instruction within popular CAI languages, such as BASIC and PILOT, basic computer managed instruction system, including practical classroom considerations.

ED 577. CHILDREN'S LITERATURE. Class 3, cr. 3. Must be preceded by junior standing.

A survey of modern and traditional literature for children including authors and illustrators; guidance in use of children's literature in relation to developmental interests, needs, and skills of children; emphasis is on evaluating materials, reviewing sources, and developing discrimination in choosing children's literature. This course is designed for beginning graduate students who plan to be school library/media specialists but is available for classroom teachers.

ED 589. SPECIAL TOPICS FOR TEACHERS. Class 1-4, cr. 1-4. May be repeated for credit. Offered only on pass/not-pass option.

Consideration of appropriate professional problems of experienced educational personnel in workshops or in-service programs. Not available for use on graduate degree programs.

ED 590. INDIVIDUAL RESEARCH PROBLEMS. Cr. 1-6. Prerequisite: six hours of psychology and six hours of education, or equivalent professional training and approval by the department.

Opportunities for students to study particular problems under the guidance of a member of the staff. This plan of individualized instruction may be used in any field of education or vocational education. Does not include thesis work.

ED 591. EDUCATIONAL PROBLEMS OF TEACHERS. Cr. 1-4.

Primarily for experienced teachers desiring credit from special workshops or individual study. Topics of individual study will deal with problems which arise from the professional work of classroom teachers.

GRADUATE LEVEL

ED 675. LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. Class 3, cr. 3. Prerequisite: ED 320, its equivalent, or consent of instructor.

Research, recent trends, and current developments in the field of language arts and implications for classroom practice in the elementary school.

ED 676. READING IN THE ELEMENTARY SCHOOL. Class 3, cr. 3. Prerequisite: ED 376, its equivalent, or consent of instructor.

Research, recent trends, and current developments in the field of reading instruction. Emphasis will be on improving developmental reading in the elementary school programs rather than on surveying remedial programs.

ED 677. SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. Class 3, cr. 3. Prerequisite: ED 322, its equivalent, or consent of instructor.

Social studies-content and place in the modern elementary education curriculum. Materials, instruction techniques, evaluation procedures, and understanding the syntax of the structure of social studies.

ED 678. SCIENCE IN THE ELEMENTARY SCHOOL. Class 3, cr. 3. Prerequisite: ED 323, its equivalent, or consent of instructor.

Analysis of historical developments and present trends in elementary school science education; the designing, implementation, and evaluation of science programs; the role of research in present and future developments.

ED 679. ELEMENTARY SCHOOL CURRICULUM. Class 3, cr. 3. Prerequisite: 12 hours in education and psychology.

Needs of children and society; modern programs; procedures for developing a curriculum, including ways to improve the present offerings of a school.

ED 680. MATHEMATICS IN THE ELEMENTARY SCHOOL. Class 3, cr. 3. Prerequisite: ED 321, or consent of instructor.

Historical and current curriculum developments in mathematics education with implications for classroom practice; analysis of instructional strategies; cognitive development; use of research results.

ED 682. INDIVIDUALIZING INSTRUCTION IN THE ELEMENTARY AND SECONDARY SCHOOL. Class 3, cr. 3. Must be preceded by completion of a teacher certification program or consent of instructor.

This course explores the foundations underlying individualized instruction, the preparation of individualized instruction materials for the classroom, the role of research in individualized instruction, and the future trends and issues in individualized instruction.

Electrical Engineering Technology

EET 102. ELECTRICAL CIRCUITS I. Class 3, Lab. 2, cr. 4 or Class 3, Lab. 3, cr. 4. Prerequisite or corequisite: MA 147.

A study of DC electrical circuits, Ohm's Law, Kirchoff's Laws, series and parallel circuits, power, introductory magnetism, ammeters, voltmeters, ohmmeters, inductance, capacitance, and an introduction to alternating voltages, currents, and reactances.

EET 105. DIGITAL FUNDAMENTALS I. Class 2, Lab. 3, cr. 3. Prerequisite or corequisite: EET 102.

A study of logic gates, binary arithmetic codes, Boolean algebra, mapping, adders, comparators, decoders, encoders, multiplex-

ers, and demultiplexers. Small scale (SSI) and medium scale (MSI) integrated circuits are used in combinational logic circuits.

EET 152. ELECTRICAL CIRCUITS II. Class 3, Lab. 2, cr. 4. Prerequisites: EET 102 and MA 148.

A study of DC and AC electrical circuits, network theorems, j operator, phasors, reactances, impedances, phase relationships, power, resonance, ideal and aircore transformers and an introduction to graphical techniques and transients.

EET 154. ANALOG ELECTRONICS I. Class 3, Lab. 3, cr. 4 or Class 3, Lab. 2, cr. 4. Prerequisites: EET 102 and MA 148; prerequisite or corequisite: EET 152.

A study of the characteristics and applications of transistors, integrated circuits, and other solid-state devices. Includes rectifier circuits, wave-form interpretation, AC and DC load lines, biasing techniques, equivalent circuits, single and multistage class A small-signal amplifiers, and h parameters.

EET 155. DIGITAL FUNDAMENTALS II. Class 2, Lab. 3, cr. 3. Prerequisite: EET 105; corequisites: EET 152, 154.

A continuation of EET 105 with an emphasis on sequential logic circuits. Flip-flops, counter analysis and design, programmable counters, shift registers, logic families, introductory computer concepts, techniques of coding, memory devices, data transmission, and conversion techniques are studied.

EET 202. ELECTRICAL CIRCUITS III. Class 2, Lab. 3, cr. 3. Prerequisite: EET 152; corequisite: MA 224.

A study of balanced and unbalanced three-phase circuits, two-port networks, non-sinusoidal waveform analysis, Fourier series, wave-shaping networks, computer aided transient analysis, with applications of active and passive circuits such as differentiators, integrators, clippers, clampers, and switching power supplies.

EET 204. ANALOG ELECTRONICS II. Class 3, Lab. 2, cr. 4 or Class 3, Lab. 3, cr. 4. Prerequisites: EET 152, 154; corequisite: MA 223.

A study of the applications of transistors, integrated circuits and other solid-state devices. Feedback principles as applied to amplifiers, oscillators, and regulated power supplies. Includes large-signal power amplifiers, special-purpose amplifiers, and AM and FM modulation and detection techniques. Introduction to filters as applied to tuned amplifiers and rectifier circuits.

EET 205. INTRODUCTION TO MICROPROCESSORS. Class 3, Lab. 3, cr. 4. Prerequisite: EET 155.

An introduction to microprocessor hardware and software. Assembly language instructions and programming, troubleshooting, and input/output techniques are studied.

EET 212. ELECTRICAL POWER AND MACHINERY. Class 3, Lab. 2, cr. 4. Prerequisite: EET 152.

A study of power transformers, single and polyphase circuits. The study of DC machines and AC single and polyphase synchronous and induction machines.

EET 214. ELECTRICITY FUNDAMENTALS. Class 2, Lab. 2, cr. 3. Course not open to EET students.

An introduction to the fundamentals of electricity; characteristics, operation, function, and testing of basic electrical circuits.

EET 233. ELECTRONICS AND INDUSTRIAL CONTROLS. Class 2, Lab. 2, cr. 3. Prerequisite: EET 214. Not open to EET students.

Familiarization with electronics as applied to industry. Basic theory and application of electronics to controls for industrial equipment and data processing.

EET 303. COMMUNICATIONS I. Class 3, Lab. 2, cr. 4. Prerequisite: EET 204.

A study of AM and FM modulation and detection, receivers, transmitters, networks, filters, antennas, and transmission lines through the VHF frequency spectrum.

EET 317. DIGITAL CIRCUITS AND SUBSYSTEMS. Class 3, Lab. 2, cr. 4. Prerequisites: EET 155 and 204.

A study of sequential circuits, memories, A/D and D/A conversion, counters, registers, arithmetic logic units, timing, and multiplexers in MSI and LSI form. Elementary I/O devices are introduced.

EET 331. GENERATION AND TRANSMISSION OF ELECTRICAL POWER. Class 3, Lab. 2, cr. 4. Prerequisite: EET 212.

A study of the generation and transmission of electrical energy. Includes techniques used

by electric utilities for the protection of generating equipment and transmission lines, an introduction to the economic considerations of power plant operation, and three-winding transformers and methods of solving unbalanced three-phase systems.

English

UNDERGRADUATE LEVEL
Lower-Division Courses

ENGL 100. ENGLISH COMPOSITION. Class 3, Lab 2, cr. 3.

For freshmen who need an extensive review of the fundamentals of English grammar, syntax, punctuation, and mechanics, or an introduction to some of the essential principles of composition. After successful completion of ENGL 100, students are assigned to ENGL 101.

ENGL 101. ENGLISH COMPOSITION I. Class 3, cr. 3. Prerequisite for all courses in English except ENGL 100 and any other courses specified by the section in individual cases.

The first half of the basic composition sequence. This course is intended to help students write clear and effective prose for their work at the University and beyond. It includes the study of structure and style, and entails extensive practice in the writing and rewriting of themes.

Students who receive an "A" in English 101 may, with their school's approval, substitute an elective course in English for English 102, if English 102 is required.

ENGL 102. ENGLISH COMPOSITION II. Class 3, cr. 3. Not open to students who have taken ENGL 103 in other divisions of the University.

The second half of the basic composition sequence. Extensive practice in writing clear and effective prose. Some assigned themes are based on reading of selected literature. The course also involves the preparation of a lengthy research paper.

Students who receive an "A" in English 101 may, with their school's approval, substitute an elective course in English for English 102, if English 102 is required.

ENGL 103. ADVANCED FRESHMAN COMPOSITION. Class 3, cr. 3.

An accelerated composition course which substitutes for ENGL 101 for students showing superior writing ability. Students who pass ENGL 103 are excused from ENGL 102; those who fail ENGL 103 must take ENGL 101.

ENGL 201. THE NATURE OF LITERARY STUDY. Class 3, cr. 3. Required of English majors.

A study of literary concepts and critical procedures as applied to representative poetry, fiction, and drama, with practice in critical writing.

ENGL 227. ELEMENTS OF LINGUISTICS. (AUSL 227.) Class 3, cr. 3.

Lectures and discussions on the main aspects of linguistics. Study of the background of American English sounds and writing systems, grammatical approaches, and social and regional language differences.

ENGL 230. GREAT NARRATIVE WORKS. Class 3, cr. 3.

Reading and discussion of great narratives from Homer's *Odyssey* to the 20th century to develop an understanding of their ideas, structures, and styles. Includes works by such other authors as Jane Austen, Dickens, and Dostoevski.

ENGL 231. INTRODUCTION TO LITERATURE. Class 3, cr. 3.

Reading and discussion of great works of various types to develop an understanding of their ideas, structures, and styles. Includes poetry, drama, biography, essay, and prose fiction.

ENGL 232. THEMATIC STUDIES IN LITERATURE. Class 3, cr. 3. May be repeated for credit.

Examination of a particular theme, such as the hero, death, or the city, and the techniques by which it is treated in various literary works, usually in more than one genre.

ENGL 235. INTRODUCTION TO DRAMA. Class 3, cr. 3.

Reading and discussion of plays of various styles from significant periods of dramatic literature aimed at enhancing the understanding and appreciation of the form and content of all drama.

ENGL 237. INTRODUCTION TO POETRY. Class 3, cr. 3.

How to read poetry intelligently; function of diction, metrics, figures of speech, and theme; place of a poem in history, uses of poetry, etc.

ENGL 238. INTRODUCTION TO FICTION. Class 3, cr. 3.

Reading and discussion of short stories and seven novels to promote awareness, understanding, and appreciation of the range, values, techniques, and meanings of modern fiction.

ENGL 239. INTRODUCTION TO BIOGRAPHY. Class 3, cr. 3.

Reading and discussion of modern biographies and influential earlier texts. Special attention given to the history of biographical writing and to the study of biography as a recognizable form of writing and a means of understanding and ordering human experience.

ENGL 240. SURVEY OF THE LITERATURE OF ENGLAND: FROM THE BEGINNINGS THROUGH THE NEOCLASSICAL PERIOD. Class 3, cr. 3.

An introduction to English literature from the Anglo-Saxon age through the 18th century neoclassical period, with emphasis on such majors writers as Chaucer, Spenser, Shakespeare, Donne, Milton, Dryden, Pope, and Johnson. The course also treats significant minor writers in their relation to literary movements and ideas.

ENGL 241. SURVEY OF THE LITERATURE OF ENGLAND: FROM THE RISE OF ROMANTICISM TO THE MODERN PERIOD. Class 3, cr. 3.

This course surveys English literature (excluding the novel) from the late 18th century to the 20th century, with emphasis on such major writers as Blake, Wordsworth, Keats, Tennyson, Arnold, Hardy, Yeats, T.S. Eliot, and Auden. The course also treats significant minor writers in their relation to literary movements and ideas.

ENGL 250. GREAT AMERICAN BOOKS. Class 3, cr. 3.

Seven books, such as *The Scarlet Letter, Moby-Dick,* and *Walden,* read and discussed as to their literary qualities and their cultural significance.

ENGL 257. LITERATURE OF BLACK AMERICA. Class 3, cr. 3.

A survey of literature written by black American authors. Close attention paid to the history of black literature and to the historical context in which it was written, as well as to the texts of major works by big writers.

ENGL 262. GREEK AND ROMAN CLASSICS IN TRANSLATION. Class 3, cr. 3.

Study of important works of Greek and Roman literature, their intrinsic literary values, and their influence on later European and American writing and thinking.

ENGL 264. THE BIBLE AS LITERATURE. Class 3, cr. 3.

A study of selections from the Old and New Testaments as examples of Hebrew and early Christian literature.

ENGL 266. WORLD LITERATURE: FROM THE BEGINNINGS TO 1700 A.D. Class 3, cr. 3.

World literature in translation. Emphasis is on Greek, Hebrew, and early European literatures-the basis of the Western cultural heritage.

ENGL 267. WORLD LITERATURE: FROM 1700 A.D. TO THE PRESENT. Class 3, cr. 3.

World literature in translation and in English originals. Focus on the changes and growth in the Western heritage, as reflected primarily in French, English, German, and Russian imaginative writing.

ENGL 285. READING FOR IMPROVED COMPREHENSION. Class 2, cr. 2.

Practice in analytic reading of selected current publications, emphasizing techniques for identifying major and minor facts and ideas, real and apparent meanings, rhetorical strategies, and devices of propaganda in various printed media. Emphasizes expository and persuasive prose.

ENGL 286. VOCABULARY BUILDING. Class 2, cr. 2.

Development of vocabulary through study of the characteristics of the language, usage, and word formation; exercises and dictionary practice; selected reading.

UNDERGRADUATE LEVEL
Upper-Division Courses

ENGL 304. ADVANCED COMPOSITION. Class 3, cr. 3. Prerequisite: Completion of basic composition requirement.

Designed for students who wish additional training in composition beyond the basic requirements. Extensive practice in the writing of mature expository, critical, and argumentative prose. (The course satisfies the Indiana certification requirement of three hours of advanced composition.)

ENGL 331. MEDIEVAL ENGLISH LITERATURE. Class 3, cr. 3.

A survey of Anglo-Saxon and Medieval English literature (700-1500 A.D.) through intensive reading of Old English heroic, elegiac, and religious poetry and Middle English romance, allegory, lyric, and drama, exclusive of Chaucer.

ENGL 333. RENAISSANCE ENGLISH LITERATURE. Class 3, cr. 3.

A survey of Renaissance literature in England through an intensive reading of representative works by such authors as Spenser, Jonson, and Donne (Shakespeare's plays not included.)

ENGL 335. RESTORATION AND 18TH CENTURY ENGLISH LITERATURE. Class 3, cr. 3.

A survey of Restoration and 18th century literature through an intensive reading of representative works by such authors as Dryden, Pope, Swift, and Johnson (the novel and the drama excluded for the most part.)

ENGL 337. 19TH CENTURY ENGLISH LITERATURE. Class 3, cr. 3.

A survey of Romantic and Victorian literature through an intensive reading of representative works by such authors as Wordsworth, Byron, Keats, Tennyson, Browning, and Arnold (the novel excluded.)

ENGL 350. SURVEY OF AMERICAN LITERATURE FROM ITS BEGINNINGS TO 1865. Class 3, cr. 3.

An introduction to American literature from the Colonial Period through the Civil War, emphasizing such major literary figures as Edward Taylor, Franklin, Poe, Hawthorne, Melville, Emerson, Thoreau, and Whitman. The course also treats significant minor writers in their relation to literary movements and ideas and includes the works of minority writers.

ENGL 351. SURVEY OF AMERICAN LITERATURE FROM 1865 TO THE POST-WORLD WAR II PERIOD. Class 3, cr. 3.

Surveys American literature from the Civil War to recent times, emphasizing such major literary figures as Dickinson, Twain, James, Crane, Frost, T.S. Eliot, Fitzgerald, Hemingway, and Faulkner. The course also treats significant minor writers in their relation to literary movements and ideas and includes the works of minority writers.

ENGL 356. AMERICAN HUMOR. Class 3, cr. 3.

Humorous writings of the 19th and 20th centuries are studied as to form and technique and also as a reflection of American life. Special emphasis on Mark Twain.

ENGL 360. WOMEN IN LITERATURE. Class 3, cr. 3.

A study of representative literary works—poetry, drama, and/or fiction—by and about women.

ENGL 372. AMERICAN FOLKLORE. Class 3, cr. 3.

Introduction to the study of Anglo-American traditions: folk tale, song, dance, humor, superstition, games, beliefs, etc., with emphasis on informal discussion of readings, recordings, movies, and lectures.

ENGL 373. SCIENCE FICTION AND FANTASY. Class 3, cr. 3.

Representative works of science fiction and fantasy examined in relation to both mainstream and popular literature. Emphasis is on technique, theme, and form.

ENGL 375. BRITISH DRAMA TO 1800, EXCLUSIVE OF SHAKESPEARE. Class 3, cr. 3.

A survey of major works of British drama from its medieval beginnings to 1800, including works by such authors as Marlowe, Jonson, Webster, Dryden, Congreve, and Sheridan.

ENGL 376. THE MOVIES. Class 2, Lab. 3, cr. 3.

The history and aesthetics of the movies from *The Great Train Robbery* and *The Birth of a Nation* or *Intolerance* to contemporary

films. Comparison of the cinematic method with the methods of the drama and the novel. One afternoon or evening a week for the screening of films; two periods a week for discussion.

ENGL 377. MAJOR MODERN POETRY. Class 3, cr. 3.

The development of new trends in and the interrelationships among the poetry of Ireland, Britain, and the United States. Poets central to modernism, such as Yeats, Pound, Eliot, Williams, and Stevens, will be emphasized, and students will also read more recent poets.

ENGL 379. THE SHORT STORY. Class 3, cr. 3.

A historical and critical study of 19th and 20th century short stories—Irish, British, American, and Continental.

ENGL 381. THE BRITISH NOVEL. Class 3, cr. 3.

A survey of representative British novels of the 18th and 19th centuries by such authors as DeFoe, Fielding, Austen, Dickens, Eliot, and Hardy.

ENGL 382. THE AMERICAN NOVEL. Class 3, cr. 3.

A survey of representative American novels of the 19th and 20th centuries by such authors as Cooper, Hawthorne, Melville, Twain, James, and Faulkner.

ENGL 383. MODERN DRAMA: IBSEN TO THE ABSURDISTS. Class 3, cr. 3.

A survey of major works of Continental, English, and American drama, including such authors as Isben, Chekhov, Shaw, O'Neill, and Beckett.

ENGL 386. HISTORY OF THE FILM TO 1938. Class 3, Lab. 2, cr. 3.

A survey of the American and European cinema from its origins in technology and realism to the aesthetic implications presented by the coming of sound. Emphasis on the feature film and on the prevalent aesthetic attitudes in the first decades of the motion picture.

ENGL 387. HISTORY OF THE FILM FROM 1938 TO THE PRESENT. Class 3, Lab. 2, cr. 3.

A survey of international cinema for the period indicated. Emphasis on the feature film and its development as a communication tool, popular art form, medium of personal expression, and self-exploring linguistic system.

ENGL 396. STUDIES IN LITERATURE AND LANGUAGE. Class 3, cr. 3. May be repeated for credit.

A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls.

ENGL 405. CREATIVE WRITING. Class 3, cr. 3. May be repeated once for credit, except by Creative Writing Majors.

Practice in writing short prose narratives and poetry for students who have finished freshman composition and wish to develop their skills further. Workshop criticism.

ENGL 420. BUSINESS WRITING. Class 3, cr. 3. Prerequisite: Completion of freshman composition requirement.

Application of rhetorical principles to business letters, memos, and reports. Emphasizes purpose, audience, voice, style, and format in writing communications such as resumes, job applications, sales letters, refusals, internal memos, and short progress and analytical reports.

ENGL 421. TECHNICAL WRITING: ENGINEERING AND SCIENCE APPLICATIONS. Class 3, cr. 3.

Technical reporting, with emphasis upon organizing data logically and suiting format to topic. Practice in the preparation of proposals, standards and specifications, instructions, graphic illustrations, and formal and informal reports.

ENGL 441. CHAUCER'S CANTERBURY TALES. Class 3, cr. 3.

Critical reading of *The Canterbury Tales* in Middle English with attention to the literary and cultural background.

ENGL 442. SHAKESPEARE. Class 3, cr. 3.

Shakespeare's dramatic craftsmanship, poetry, humor, characterization, psychology, and modern pertinence illustrated in representative tragedies, comedies, and history plays.

ENGL 444. MILTON'S MAJOR POETRY. Class 3, cr. 3.

A study of Milton's major poetry, with particular emphasis upon *Paradise Lost* and *Samson Agonistes.*

ENGL 455. MAIN CURRENTS OF AMERICAN THOUGHT. Class 3, cr. 3.

A survey of dominant ideas and intellectual trends in America from 1607 to the present as revealed through American literature and as related to American life and culture.

DUAL LEVEL
Undergraduate-Graduate

(General prerequisite for all English literature courses numbered above 500: fulfillment of the basic composition requirement and six hours of literature, or consent of the instructor.)

ENGL 535. RESTORATION AND EARLY 18TH CENTURY LITERATURE. Class 3, cr. 3.

A survey of the nondramatic literature from 1660 to 1744, from Clarendon through Thomson. Emphasizes Bunyan, Dryden, Pope, Swift.

ENGL 541. CHAUCER. Class 3, cr. 3.

Intensive study of the development of Chaucer's literary work with consideration of his language, his sources, and various critical approaches to his poetry.

ENGL 547. THE ROMANTIC MOVEMENT IN ENGLISH LITERATURE. Class 3, cr. 3.

Surveys the principal writers of the Romantic Movement (Burns to Keats), emphasizing Wordsworth; relates the historical background to the thought and feeling of the writers concerned.

ENGL 548. VICTORIAN LITERATURE. Class 3, cr. 3.

A survey of English poetry and prose from about 1832 to about 1880.

ENGL 558. THE RISE OF REALISM IN AMERICAN LITERATURE. Class 3, cr. 3.

A survey of American literature from about 1855 to 1900, beginning with Whitman and ending with James and the early naturalists.

ENGL 575. MODERN AMERICAN DRAMA. Class 3, cr. 3.

Representative plays by major American playwrights from 1920 to the present.

ENGL 580. LITERATURE AND MODERN THOUGHT. Class 3, cr. 3.

Reading in literature, philosophy, and social criticism, concentrated on the political, industrial, and scientific revolutions that have molded modern life and thought.

ENGL 589. DIRECTED WRITING. Cr. 1-3. Prerequisite: consent of the instructor. May be repeated for credit.

Writing—creative, popularly technical, biographical, historical, philosophical—on subjects of the student's choice. Individual conferences only. No class meetings.

ENGL 590. DIRECTED READING. Cr. 1-3. Prerequisite: consent of the instructor. May be repeated for credit.

Directs the reading of students with special interests. Guides students in profitable reading in subjects of their own choice. Individual conferences; no class meetings.

ENGL 595. CONTEMPORARY AMERICAN FICTION. Class 3, cr. 3.

Study of fiction of the past two or three decades as it relates to American literary traditions and thought. Survey of scholarship and criticism.

ENGL 596. ADVANCED STUDIES IN LITERATURE AND LANGUAGE. Class 3, cr. 3. May be repeated for credit.

A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls. Emphasis on critical analysis, scholarly techniques, and secondary materials.

Entomology

ENTO 100. INTRODUCTORY ENTOMOLOGY. Class 2, Lab. 2, cr. 3.

A general course in entomology which includes an introduction to the following areas: the phylum Arthropoda; insect structure and function; insect natural history, behavior, and classification; and principles of applied entomology.

Foods and Nutrition

F&N 203. FOODS: THEIR SELECTION AND PREPARATION. Class 2, Lab. 3, cr. 3. Credit not given for both F&N 203 and 205.

Principles of food selection, preparation, and meal planning.

F&N 303. ESSENTIALS OF NUTRITION. Class 3, cr. 3. No Prerequisites: Credits not given for both F&N 303 and 315.

Basic nutrition and its application in meeting needs of all ages. Consideration is given to food selection and community nutrition education programs.

Forestry and Conservation

FOR 103. INTRODUCTION TO NATURAL RESOURCE CONSERVATION. Class 3, cr. 3.

A broad treatment of the scientific basis for forestry and associated natural resources. For students majoring in forestry and natural resources and those interested in a natural resources course as an elective.

FOR 382. NATURAL RESOURCES AND MAN. Class 3, cr. 3.

A survey of the interrelationships among man, natural resources, and the environment. Course satisfies conservation requirement for teacher certification.

French

FR 101. FIRST COURSE IN FRENCH. Class 3, Lab. 1, cr. 3.

Introduction to the structure of the language. A certain number of basic grammatical rules and idiomatic constructions are covered, with illustrations of their application through simple, graduated textbook readings. Each lesson concentrates on specific rules and constructions with the objective of understanding through reading. Main objective: supplying the students with tools (grammar, idioms) to enable them to handle the language in the future.

FR 102. SECOND COURSE IN FRENCH. Class 3, Lab. 1, cr. 3. Prerequisite: FR 101.

Continuation of FR 101. Completion of study of basic grammar, proceeding in the same manner as FR 101. Reading with understanding still the main objective, based on knowledge and recognition of grammar and idiomatic constructions.

FR 203. THIRD COURSE IN FRENCH. Class 3, cr. 3. Prerequisite: FR 102.

Application of knowledge of grammar and idiomatic constructions to reading with understanding of graduated texts. Progressive building of vocabulary with concise reviews of grammar when necessary. First attempts at writing and impromptu speaking.

FR 204. FOURTH COURSE IN FRENCH. Class 3, cr. 3. Prerequisite: FR 203.

Continuation of graduated readings with the objective of enlarging vocabulary and ability to construct sentences. Occasional grammatical review, when necessary. Some practice in composition and conversation.
Introduction of the idea of "thinking in French".

General Studies (Technical Writing)

GNT 220. TECHNICAL REPORT WRITING. Class 3, cr. 3. Prerequisite: ENGL 101.

Extensive application of the principles of good writing in industrial reporting, with emphasis on the techniques of presenting information graphically as well as in a clear, concise written form.

Geosciences

GEOS 120. INTRODUCTION TO GEOGRAPHY. Class 3, cr. 3.

An introduction to the systematic study of location and spatial variation of natural features. Elements of place, time, distance, and area are considered in relation to man's perception of environment, his organization of cultural activities and his utilization of natural resources.

GEOS 220. PRINCIPLES OF PHYSICAL GEOGRAPHY. Class 2, Lab. 2, cr. 3.

A study of the spatial variability of landforms, climates, soils, and resources that comprise the earth's environment.

German

GER 101. FIRST COURSE IN GERMAN. Class 3, Lab. 1, cr. 3.

Introduction to the structure of the language. A certain number of basic grammatical rules and idiomatic constructions are covered, with illustrations of their application through simple,

graduated textbook readings. Each lesson concentrates on specific rules and constructions with the objective of understanding through reading. Main objective: supplying the students with tools (grammar, idioms) to enable them to handle the language in the future.

GER 102. SECOND COURSE IN GERMAN. Class 3, Lab. 1, cr. 3. Prerequisite: GER 101.

Continuation of GER 101. Completion of study of basic grammar, proceeding in the same manner as GER 101. Reading with understanding still the main objective, based on knowledge and recognition of grammar and idiomatic constructions.

GER 203. THIRD COURSE IN GERMAN. Class 3, cr. 3. Prerequisite: GER 102.

Application of knowledge of grammar and idiomatic constructions to reading with understanding of graduated texts. Progressive building of vocabulary with concise reviews of grammar when necessary. First attempts at writing and impromptu speaking.

GER 204. FOURTH COURSE IN GERMAN. Class 3, cr. 3. Prerequisite: GER 203.

Continuation of graduated readings with the objective of enlarging vocabulary and ability to construct sentences. Occasional grammatical review, when necessary. Some practice in composition and conversation.
Introduction of the idea of "thinking in German".

Graphics (See Technical Graphics)

History

HIST 102. INTRODUCTION TO THE ANCIENT WORLD. Class 3, cr. 3.

A history of the ancient world (Near East, Greece, and Rome) from its prehistoric origins to its dismemberment in the early Christian era. It is designed to meet the needs of the beginning student of European and world history.

HIST 103. INTRODUCTION TO THE MEDIEVAL WORLD. Class 3, cr. 3.

Barbarians, kings, queens, peasants, witches, saints, teachers, students, heretics, Moslems, Jews, Christians, love, death, monks, farm life, city life, ordinary men, women, and children as Europe develops from A.D. 500 to 1500.

HIST 104. INTRODUCTION TO THE MODERN WORLD. Class 3, cr. 3.

Traces the expansion of Europe into the Americas, Africa, and Asia. The French Revolution, nationalism, and the development of Western European states from the era of the Reformation to the present are studied.

HIST 151. AMERICAN HISTORY TO 1877. Class 3, cr. 3.

A study of the development of American political, economic, and social institutions from the early explorations and colonial settlements through Reconstruction.

HIST 152. UNITED STATES SINCE 1877. Class 3, cr. 3.

A study of the growth of the United States from 1877 to the present. The new industrialism, agrarian problems, depression, the New Deal, the two world wars, the cold war, and similar topics are analyzed.

HIST 367. TWENTIETH-CENTURY AMERICAN HISTORY. Class 3, cr. 3.

A survey of twentieth-century American history, covering major political and economic developments and related intellectual movements. A parallel consideration of foreign affairs traces the emergence of America as a world power and the effects of her new status on the Western Hemisphere, Europe, and Asia.

HIST 383. RECENT AMERICAN CONSTITUTIONAL HISTORY. Class 3, cr. 3.

Intensive study of constitutional questions and Supreme Court answers from the period of the Warren Court to present. Particularly emphasized are the areas of segregation, civil rights, and civil liberties and guarantees for personal rights.

HIST 386. HISTORY OF AMERICAN FOREIGN RELATIONS. Class 3, cr. 3.

The history of American foreign relations from the late colonial period to the present. The elements of continuity in the concerns and goals of United States policy are traced as background for an examination of the new issues and alternative responses that present themselves after great-power status and obligations develop in the twentieth century.

HIST 466. INDUSTRIALISM AND THE PROGRESSIVE ERA, 1877 TO 1914. Class 3, cr. 3. Prerequisite: HIST 152.

A survey of late nineteenth- and early twentieth-century American history covering the industrial and corporate development, the Spanish-American War and the resulting imperialism; and the growth of governmental regulation and control.

HIST 467. RECENT AMERICAN HISTORY. Class 3, cr. 3. Prerequisites: HIST 151, 152.

A study of twentieth-century American history into the depression thirties. Domestic political and social developments will be traced from 1914 to 1939, while diplomatic and military events will be covered from the early twentieth century to 1933. Particular attention will thus be given to the First World War and the Great Depression.

HIST 493. INTERDISCIPLINARY UNDERGRADUATE SEMINAR. Class 1-3, cr. 1-3. Same as PHIL 493, POL 493, PSY 493, SOC 493, and THTR 493. May be repeated for credit.

An undergraduate seminar devoted to an interdisciplinary examination of social, economic, political, and intellectual movements, using the faculty resources of the participating departments. Subject matter will vary. Each offering of the seminar will be approved by a committee of department heads from the sponsoring departments.

Industrial Engineering Technology

IET 104. INDUSTRIAL ORGANIZATION. Class 3, cr. 3.

A detailed survey of organizational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy, and human factors necessary for effective management.

IET 120. SYSTEMS AND PROCEDURES. Class 3, cr. 3.

An introduction to the systems concept. Surveys recognizing and defining the system's problem; the management audit and tools for systems analysis; design and control of forms, work simplification, work measurement and procedures; operations research; punched card systems; management and administration; and organization of the systems function.

IET 201. MICROCOMPUTERS FOR INDUSTRIAL ENGINEERS. Class 3, cr. 3. Prerequisites: IET 104 or department consent.

A detailed exposure of micro-computer systems and programs, emphasizing applications in industrial and manufacturing engineering.

IET 204. TECHNIQUES OF MAINTAINING QUALITY. Class 2, Lab. 3, cr. 3 or Class 3, cr. 3. Prerequisite: MA 148.

An analysis of the basic principles of quality control includes statistical aspects of tolerances, basic concept of probabilities, frequency distribution, X & R charts and uses of mechanical, electronic, air and light devices for checking and measuring to determine quality levels of acceptance.

IET 220. CRITICAL PATH ANALYSIS. Class 1, Lab. 3, cr. 2 or Class 1, Lab. 3, cr. 2.

Detailed study of planning and control of a schedule by network techniques, including the time/cost analysis of CPM scheduling for application on construction projects, job shop scheduling and related problems. Includes an introduction to PERT and the use of the computer for network analysis.

IET 224. PRODUCTION PLANNING AND CONTROL. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisite: IET 104.

Reproduction planning of the most economical methods, machines, operations, and materials for the manufacture of a product. The planning, scheduling, routing, and detailed procedure of production control.

IET 250. FUNDAMENTALS OF PRODUCTION COST ANALYSIS. Class 3, cr. 3. Prerequisite: IET 104.

Surveys of fundamental mechanics of accounting, principles of account classification, financial and operating statements, and the generation of cost data according to cost accounting principles. Surveys the generation of cost data according to the principles of engineering economy. Examines applications of cost accounting data and engineering economy cost data to specific management decision areas through selected case problems.

IET 252. TECHNIQUES OF INDIRECT LABOR CONTROL. Class 3, cr. 3. Prerequisites: IET 104, 262, 266.

The study of the characteristics and importance of indirect and service sectors of our business, industrial, and government economy. Topics covered in the course include size and cost factors of indirect and service labor, problems encountered in measurement and control, human relations aspects associated with employees in these areas, selling proposals, and implementing programs.

IET 262. MOTION STUDY AND WORK METHODS. Class 3, Lab. 3, cr. 3 or Class 3, cr. 3. Prerequisite: MA 148.

The study of the various techniques of motion study including process charts, operation charts, multiple activity charts, micro and memo motion study, therbligs, the movie camera, along with actual practice in their use. Includes study and application of the basic principles used to develop better methods of performing work.

IET 266. WORK MEASUREMENT AND INCENTIVES. Class 3, Lab. 3, cr. 3 or Class 3, cr. 3. Prerequisite: IET 262.

A study of the fundamentals of time study and work measurement with actual practice in their use. Includes stop watch time study, measuring work with movie camera, the establishment of allowances by both stop watch and work sampling studies, the establishment and use of predetermined time values, and the construction and use of work measurement formulae.

IET 268. PLANT LAYOUT. Class 3, cr. 3. Prerequisite: IET 104.

Arrangement of stock, machine, layout of aisles, and use of space, and material handling for the highest efficiency of production.

IET 272. JOB EVALUATION. Class 2, cr. 2. Prerequisite: IET 104.

A survey of the basic principles and significance of job evaluation. An analysis, of current practices and techniques used in job analysis, job descriptions, and job evaluation.

IET 280. WAGE INCENTIVES. Class 2, cr. 2.

An analysis and study of the various types of wage incentive plans, their significance, adaptability, effectiveness, and equitability. A systematic appraisal of the basic objectives and currently used techniques in the administration of wage incentive programs.

IET 286. NUMERICAL CONTROL PROGRAMMING. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisites: TG 110 and MET 180, or dept. consent.

Introduction to the fundamental concepts of numerical control programming as related to manufacturing processes and machine tools. Economics of numerical control, available languages, and programming are emphasized. Elementary programs will be written and validated.

IET 296. INDUSTRIAL TECHNOLOGY CASE PROBLEMS. Class 2, cr. 2.

Application of theories developed in the several industrial technology courses to select general case problems—to provide practice in the integration of principles.

IET 299. SPECIAL STUDIES IN INDUSTRIAL ENGINEERING TECHNOLOGY. Cr. 1-3. Consent of department required.

Opportunity to study specific problems in the field of Industrial Engineering Technology under the guidance of a qualified faculty member within the department.

IET 312. MATERIALS HANDLING. Class 3, cr. 3. Prerequisite: IET 268.

A survey of materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, special handling techniques, and the management of the materials handling division in the industrial organization.

UNDERGRADUATE LEVEL
Upper-Division Courses

IET 451. MONETARY ANALYSIS FOR INDUSTRIAL DECISIONS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Not open to students who have had IET 250.

An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives.

Interdisciplinary Studies (Great Issues)

IDIS 435. GREAT ISSUES. Class 3, cr. 3.

A consideration of major issues affecting mankind in the perspective of total experience, relating generally to questions of freedom and order, man and the state, war and peace, poverty and wealth, and issues in education. Comprises lectures by visiting scholars, public officials, business men, professional people, artists, and other leaders of thought and opinion, reading selections from the "classics," and discussion periods.

IDIS 436. GREAT ISSUES. Class 3, cr. 3. Need not be preceded by IDIS 435.

A continuation of IDIS 435, with emphasis on issues relating to man and the universe, science and society, the nature of man, right and wrong, religion and morals, and man and the imagination: the arts.

Management

MGMT 200. INTRODUCTORY ACCOUNTING. Class 3, cr. 3.

An examination of the basic concepts and conventions which underlie financial reporting. Construction and uses of financial statements.

MGMT 201. MANAGEMENT ACCOUNTING I. Class 3, cr. 3. Prerequisite: MGMT 200 or equivalent.

An introduction to internal uses of accounting information. Consideration of job order, process, and standard cost accounting systems, as well as other managerial accounting topics.

MGMT 430. LABOR RELATIONS. Class 3, cr. 3. Prerequisite: a basic course in economic theory or consent of the department.

The course focuses on employee-employer relations. Attention is given to topics in collective bargaining, unions, wage analysis, economic insecurity, the role of government in labor relations, and employment aspects of civil rights.

MGMT 490. PROBLEMS IN MANAGEMENT. Cr. 1-4. Arrange with instructor before enrolling.

Investigation in a specific management field.

Mathematical Sciences

MA 110. BUSINESS MATHEMATICS. Class 3, cr. 3.

A survey of topics in business mathematics. Topics include metric system, buying, pricing and selling, payroll, depreciation, business profit, partnerships, corporations, simple and compound interest, and analytical procedures.

MA 111. ALGEBRA. Class 3, cr. 3.

This course satisfies the one unit of algebra required for admission.

MA 123. ELEMENTARY CONCEPTS OF MATHEMATICS I. Class 3, cr. 3. Not open to students with credit in MA 133. Prerequisite: Algebra and Geometry.

Operation of pocket calculator. Pictorial representation of data, ratio, proportion, and variation. The function concept. Linear and quadratic equations with emphasis on applications.

MA 133. MATHEMATICS FOR ELEMENTARY TEACHERS I. Sem. 1 and 2. Class 4, cr. 4. Designed for prospective elementary school teachers. The sequence MA 133-134 fulfills the mathematics requirements for elementary education majors. Prerequisite: Algebra and Geometry.

Numeration systems: arithmetic, operations, foundations for algorithms, number systems, decimals, percent, elementary number theory, functions and probability.

MA 134. MATHEMATICS FOR ELEMENTARY TEACHERS II. Sem. 1 and 2. Class 4, cr. 4. Must be preceded by MA 133.

Geometry of the plane and space: intuitive concepts, transformations, tesselations, measurement, the metric system. Statistics: measures of central tendency and dispersion.

MA 147. ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY I. Class 3, cr. 3. Prerequisite: One year algebra and one year geometry.

College algebra and trigonometry for technology students. Does not carry credit toward graduation in the Schools of Engineering or

the Division of Mathematical Sciences. MA 147-148 is a two semester version of MA 150.

MA 148. ALGEBRA AND TRIGONOMETRY FOR TECHNOLOGY II. Class 3, cr. 3. Prerequisite: MA 147 or equivalent.

Continuation of MA 147. Not open to students with credit in MA 150. Does not carry credit toward graduation in the Schools of Engineering or the Division of Mathematical Sciences.

MA 153. ALGEBRA AND TRIGONOMETRY I. Class 3, cr. 3. Prerequisites: Two years algebra and one year geometry. Not open to students with credit in MA 151.

MA 153-154 is a two-semester version of 151. Does not carry credit toward graduation in the Schools of Engineering or the Division of Mathematical Sciences.

MA 154. ALGEBRA AND TRIGONOMETRY II. Class 3, cr. 3. Not open to students with credit in MA 151. Continuation of MA 153.

Does not carry credit towards graduation in the Schools of Engineering or the Division of Mathematical Sciences.

MA 161. PLANE ANALYTIC GEOMETRY AND CALCULUS I. Class 5, cr. 5. Not open to students with credit in MA 163.

Plane analytic geometry, vectors, differential calculus. Designed for students who have not studied analytic geometry in high school.

MA 162. PLANE ANALYTIC GEOMETRY AND CALCULUS II. Class 5, cr. 5. Prerequisite: MA 161.

Continuation of MA 161. Calculus of one variable: derivatives, integrals, applications.

MA 223. INTRODUCTORY ANALYSIS I. Class 3, cr. 3. Prerequisites: One year college algebra and one year college trigonometry. Not open to students with credit in MA 162 or 171.

Differential and integral calculus of one variable. Applications to problems in the biological and social sciences and technology.

MA 224. INTRODUCTORY ANALYSIS II. Class 3, cr. 3. Prerequisite: MA 223. Not open to students with credit in MA 172 or 261.

Partial derivatives; differentials; multiple integrals; introduction to differential equations. Applications to problems in the biological and social sciences and technology.

MA 261. MULTIVARIATE CALCULUS. Class 4, cr. 4. Prerequisite: MA 162.

Solid analytic geometry, partial differentiation, multiple integrals, infinite series.

MA 262. LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS. Class 4, cr. 4. Prerequisite: MA 261.

Linear algebra, elements of differential equations.

MA 351. ELEMENTARY LINEAR ALGEBRA. Class 3, cr. 3. Prerequisite: MA 261.

Systems of linear equations, finite dimensional vector spaces, matrices, determinants, applications to analytic geometry.

Mechanical Engineering Technology

MET 102. PRODUCTION DRAWING. Class 1, Lab. 5, cr. 3. Prerequisite: TG 110.

Applications of principles of engineering drawing to detail, assembly, design layout, equipment installations, and related drawings.

MET 111. APPLIED STATICS. Class 2, Lab. 2, cr. 3. Corequisites: MA 151 or 148 and MET 160.

A study of force systems, resultants and equilibrium, trusses, frames, beams, shear and moments in beams.

MET 141. MATERIALS AND PROCESSES I. Class 2, Lab. 2, cr. 3.

An overview of structures, properties and applications of metals, ceramics, and polymers commonly used in industry. It includes primary production processes, as well as heat treatments and hot or cold working to meet varied commercial needs. It involves introductory meteorology and environmental aspects.

MET 142. MATERIALS AND PROCESSES II. Class 2, Lab 3, cr. 3 or Class 3, cr. 3.

A survey of basic casting, welding, and joining processes. Foundry areas include patterns, cores, molding, melting, and cleaning. Basic

arc, gas, TIG, and MIG welding methods are presented as well as the metallurgy of welding processes.

MET 160. APPLIED ENGINEERING COMPUTATIONAL ANALYSIS. Class 1, Lab 3, cr. 2.

Computations with the electronic calculator. The factor label method of unit conversion of commonly used engineering (including metric) units. Construction, drawing, and use of engineering graphs for both descriptive and computational purposes. Introduction to computer programming using BASIC language. The emphasis will be on development of skills.

MET 211. APPLIED STRENGTH OF MATERIALS. Class 4, cr. 4 or Class 3, Lab 2, cr. 4. Prerequisite: MET 111.

Principles of applied strength of materials primarily with reference to application.

MET 212. APPLICATIONS OF ENGINEERING MECHANICS. Class 3, cr. 3.

An introduction to some applications of engineering mechanics. An elementary expansion of basic Newtonian physics as applied to static and dynamic force systems. Internal stresses and strains produced by these forces in selected machine elements will be exemplified. Work, energy, and power will also be discussed. (Does not carry credit toward graduation in Mechanical Engineering Technology.)

MET 213. DYNAMICS. Class 2, cr. 2. Prerequisite: MET 111.

Applied fundamentals of dynamic forces, including displacement, velocity, acceleration, work energy, power, impulse, momentum, and impact.

MET 214. MACHINE ELEMENTS. Class 3, cr. 3. Prerequisites: MET 211 and 213.

The theories and methods developed in static, dynamic, and strength of materials are applied to the selection of basic machine components. The course will develop the fundamental principles required for the selection of the individual elements of which a machine is composed.

MET 215. WELDING. Class 1, Lab. 4, cr. 3

The study of welding equipment and processes. Laboratory practice in typical welding problems using both arc and gas methods.

MET 220. HEAT & POWER I. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisites: MA 148 and MET 160.

Principles of thermodynamics and fluid dynamics as applied to the conservation laws of mass and energy, prime movers, and power cycles.

MET 230. FLUID POWER. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisite: MET 220.

A study of compressible and incompressible fluid statics and dynamics as applied to industrial hydraulic and pneumatic circuits and controls.

MET 242. MANUFACTURING PROCESSES. Class 2, Lab. 2, cr. 3. Prerequisite: MET 141.

A basic survey of manufacturing processes and tools used by industry to convert bars, forgings, castings, plate, and sheet materials into finished products. Includes basic mechanics of materials removal and forming, measuring, quality control, and safety of operations.

MET 299. MECHANICAL ENGINEERING TECHNOLOGY. Class 0-3, Lab. 2-6, cr. 1-3. Prerequisite: mechanical engineering technology major.

Hours and subject matter to be arranged by instructor and approved by MET curriculum committee. Primarily for third- and fourth-semester students with special aptitudes.

UNDERGRADUATE LEVEL
Upper-Division Courses

MET 302. COMPUTER-ASSISTED DESIGN. Lec. 1, Lab. 5, cr. 3. Prerequisites: MET 102, MA 224, and consent of instructor.

Theory and practice of computer graphics as applied to computer-assisted design. Introduction to commercial CAD systems, with a major emphasis on course projects.

MET 311. EXPERIMENTAL STRENGTH OF MATERIALS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisites: MET 214, MA 224, PHYS 219.

Selected advanced topics from the areas of mechanics of materials, structures, stress analysis, and strain measurements are considered. Basic electronic strain gage circuits and instrumentation will be considered with emphasis on transducer applications.

MET 313. APPLIED FLUID MECHANICS. Class 3, cr. 3. Prerequisites: MET 220 and MA 224.

The fundamentals of fluid mechanics, including properties of fluid, pressure, hydrostatics, and dynamics of fluid flow; friction losses and sizing of pipes.

MET 314. FUNDAMENTALS OF MACHINE ELEMENTS II. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: MET 214.

A second course in machine elements. Topics covered include roller bearings, helical gears, worm gears, bevel gears, long shoe brakes, power screws, curved beams, thick and thin walled cylinders, chain drives, and additional topics. Also some consideration of theories of failure, stress concentration, and endurance limit.

MET 315. APPLIED MECHANISM KINEMATICS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisites: MET 213 and 214.

Application of the principles of kinematics to mechanisms. Graphical and semigraphical methods are used to determine displacement, velocities, and acceleration in common mechanisms. Static and dynamic force analysis of linkages, mechanisms and machines. Static and dynamic balancing of rotating mass systems.

MET 320. APPLIED THERMODYNAMICS. Class 3, cr. 3. Prerequisites: MET 220 and MA 224.

The fundamentals of thermodynamics including applications of the first and second laws, enthalpy, entropy, and reversible and irreversible processes.

MET 321. AIR CONDITIONING AND REFRIGERATION I. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: MET 320.

A study of heat gains, losses, heat producing equipment, and cooling equipment in addition to the design of the direct system. Includes controls and instrumentation for commercial, industrial, and residential systems.

MET 324. APPLIED THERMAL ANALYSES. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: MET 320.

Heat transfer due to conduction, radiation, and convection will be considered individually and in combination. Applications to practical design problems will be made.

MET 332. HYDRAULIC CIRCUITS. Class 2, Lab. 2, cr. 3. Prerequisite: MET 230.

Principles and practices for selecting and applying fluid power devices and related equipment to machine circuits for both linear and rotary motion. The nature of the work to be accomplished and the various fields of application will be analyzed.

MET 341. APPLIED METALLURGY. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: MET 141 or equivalent.

A study of ferrous and nonferrous metals and alloys. Includes atomic structure and bonding and arrangements of atoms; phase diagrams; reactions within solid materials; and the interrelation of these to show how structure determines the properties of a material.

MET 345. WELDING PROCESSES. Class 2, Lab. 3, cr. 3. Prerequisite: MET 142.

A study of applied welding processes, equipment and weldment. An in-depth look at gas metal arc welding, gas tungsten arc welding, and electron beam welding and heat treating; advantages, disadvantages, and costs will be considered.

MET 384. INSTRUMENTATION. Class 2, Lab. 3, cr. 3. Prerequisite: MA 150 or approval of instructor.

Introduction to the basic concepts and terminology of instruments. Procedures and techniques essential to industrial measurement and transmission of data. Emphasis on pressure flow, temperature level, and humidity measurements. Study of hysteresis repeatability, weighted signals, span, suppression, and range.

MET 430. PNEUMATIC CIRCUITS. Class 2, Lab. 2, cr. 3. Prerequisite: MET 230.

Principles and practices of sizing and applying pneumatic devices and associated components to practical industrial type circuits to produce linear and rotary motion. The course will include compression of air, conditioning of air, air flow, valve and actuator sizing principles, and circuit and system design.

MET 432. HYDRAULIC SERVO SYSTEMS. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: MET 332.

Study of feedback servo control system types and applications. The study will include the effects of fluid and conductor elasticity on performance and accuracy. Analysis of systems and system performance will show the benefits to be derived.

MET 436. PNEUMATIC ROBOTS. Class 2, Lab. 2, cr. 3. Prerequisite: MET 230.

An introduction to fluid logic control systems as applied to industrial robots. The course includes pneumatic logic circuit design using both fluidic and/or moving part devices. Designs are placed in operation on industrial pneumatic robots in the laboratory.

MET 441. MANUFACTURING QUALITY CONTROL. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: STAT 301.

Quality control practices used in manufacturing industries; management, statistical control charts, reliability, sampling plans, economics, computer methods, and test equipment.

MET 499. MECHANICAL ENGINEERING TECHNOLOGY. Class 0-3, Lab 2-6, cr. 1-6. Prerequisite: Mechanical Engineering Technology major.

Hours and subject matter to be arranged by instructor and approved by MET curriculum committee. Primarily for seventh- and eighth-semester students with special aptitudes. Course may be repeated for credit up to six hours.

Music

MUS 250. MUSIC APPRECIATION. Class 3, cr. 3.

An introduction to the understanding of music. How to listen to its materials. A study of the media, forms, styles, and composers through recorded, live, and film media. Methods used in the structure of music as well as the aesthetic values present in music are also emphasized.

Nursing

NUR 115. INTRODUCTION TO NURSING. Class 4, Lab. 6, cr. 6. Prerequisite or Corequisite: BIOL 203, or consent of instructor. Admission by consent of nursing faculty only.

The nursing process is introduced and utilized in the context of human needs maintenance/fulfillment on the health illness continuum through the life span. The concept of the person as a holistic being is emphasized. Interpersonal communication and dynamics of behavior are studied. Laboratory experience is provided in campus laboratories and clinical settings.

NUR 116. NURSING OF ADULTS AND CHILDREN I. Class 4, Lab 6, cr. 6. Prerequisite: NUR 115, BIOL 203; Corequisite: BIOL 204, PCTX 201, or consent of instructor.

The nursing process is utilized to promote holistic coping of clients with alterations in nutrition, elimination, mobility and sexual role satisfaction. Nursing interventions related to the perioperative experience, pharmacotherapeutics and client teaching are emphasized. Clinical experience is provided in campus laboratories and clinical settings.

NUR 224. NURSING OF ADULTS AND CHILDREN II. Class 5, Lab. 15, cr. 10. Prerequisites: BIOL 203, 204, 221, NUR 115, 116, PCTX 201.

The nursing process is utilized to promote holistic coping of clients with alterations in fluid/electrolyte balance, fluid/gas transport, metabolic and sensorineural function. Complex nursing interventions to assist client adaptation are emphasized. Clinical experience is provided in campus laboratories and clinical settings.

NUR 225. MATERNAL CHILD HEALTH NURSING. Class 3, Lab. 6, cr. 5. Prerequisites: NUR 115, 116, PCTX 201, BIOL 203, 204, 221.

The nursing process is utilized to promote needs maintenance/fulfillment of the emerging family group throughout the maternity cycle and childhood. Adaptive coping of the individuals in the parent-child relationship is emphasized. Clinical experience is provided in campus laboratories and clinical settings.

NUR 240. PSYCHIATRIC MENTAL HEALTH NURSING. Class 3, Lab. 6, cr. 5. Prerequisites: NUR 115, 116, PCTX 201, BIOL 203, 204, 221, PSY 120.

The nursing process is utilized to promote the holistic coping of clients with behavioral disturbances. Therapeutic communication is emphasized and intrapersonal, interpersonal, group, and family processes are applied. Clinical experience is provided in campus laboratories and clinical settings.

NUR 280. ISSUES IN NURSING. Class 3, Cr. 3. Prerequisites: NUR 115, 116.

The nursing process is utilized to promote the holistic coping of the individual student is

making the role transition from student to graduate nurse. Emphasis is placed on contemporary trends and issues in nursing and in health care delivery.

NUR 330. HUMAN SEXUALITY: NURSING IMPLICATIONS. Class 3, cr. 3. Prerequisite: One year of nursing study.

The course is designed to provide basic current knowledge of sexual development, sexual functioning and sexual behavior in health and illness. Concepts and issues relating to human sexuality are explored with emphasis on the nurse-client interactions required by health care situations which threaten sexual integrity.

NUR 355. APPLIED THANATOLOGY. Class 3, cr. 3.

Exploration of the basic needs of the dying individual and the family. Identification of appropriate and supportive nursing intervention within a social and cultural framework will enable students to better appreciate and apply various psychological therapeutic interventions for the client and the family resulting in better coping and/or adaptive behaviors within the system.

NUR 356. NURSING LEADERSHIP. Class 3, cr. 3. Prerequisite: NUR 116, or consent of instructor.

The three levels of leadership put into focus will be the responsibilities of the patient-centered nurse, nurse manager, and nurse administrator. Issues of organizational structure, problem solving, treatment modalities, fiscal planning and quality assurance will be explored.

NUR 358. CULTURAL DIVERSITY RELATED TO ILLNESS. Class 3, cr. 3. Prerequisite: Must be enrolled in specific major course of study at Purdue University North Central.

This course explores the basic tenets of Afro-, Hispanic-, Oriental-, and Native Americans whose diverse customs, beliefs and value systems may affect the manner in which critical health needs are met. Emphasizes nurse-client interactions and awareness of critical health factors that vary among ethnic groups.

Pharmacy

PCTX 201. INTRODUCTORY PHARMACOLOGY. Class 3, cr. 3. Corequisite: NUR 116.

An introduction to the pharmacological basis of therapeutics.

Philosophy

PHIL 110. INTRODUCTION TO PHILOSOPHY. Class 3, cr. 3.

The basic problems and types of philosophy with special emphasis upon the problems of knowledge and nature of reality.

PHIL 111. ETHICS. Class 3, cr. 3.

A study of the nature of moral value and obligation. Topics such as the following will be considered: different conceptions of the good life and standards of right conduct; the regulation of non-moral and moral goodness; determinism, free will, and the problem of moral responsibility; the political and social dimensions of ethics; the principles and methods of moral judgment. Readings will be drawn both from contemporary sources and from the works of such philosophers as Plato, Aristotle, Aquinas, Butler, Hume, Kant, and J. S. Mill.

Physics

PHYS 152. MECHANICS. Class 4, Lab. 2, cr. 4. Prerequisite or corequisite: MA 162 or equivalent.

Statics; uniform and accelerated motion; Newton's laws; circular motion; energy, momentum, conservation principles; dynamics of rotation; gravitation and planetary motion; hydrostatics and hydrodynamics; simple harmonic and wave motion; sound.

PHYS 210. THE NATURE OF PHYSICAL SCIENCE I. Class 2, Lab. 3, cr. 3.

Development of basic concepts and theories in physical science; a terminal course.

PHYS 218. GENERAL PHYSICS. Class 4, Lab. 2, cr. 4. Prerequisites: MA 147 & 148.

Mechanics, heat, and sound, primarily for technology students.

PHYS 219. GENERAL PHYSICS. Class 4, Lab. 2, cr. 4. Prerequisite: PHYS 218.

Electricity, light, and modern physics, primarily for technology students.

PHYS 220. GENERAL PHYSICS. Class 3, Lab. 2, cr. 4. Prerequisites: MA 147, 148 or equivalent.

Mechanics, heat, and sound for students not specializing in physics.

PHYS 221. GENERAL PHYSICS. Class 3, Lab. 2, cr. 4. Prerequisite: PHYS 220.

Electricity, light, and modern physics for students not specializing in physics.

PHYS 251. HEAT, ELECTRICITY, AND OPTICS. Class 5, Lab. 2, cr. 5. Prerequisite: PHYS 152.

Electrostatics, current electricity, electromagnetism, magnetic properties of matter; geometrical and physical optics. Heat, kinetic theory, elementary thermodynamics, heat transfer.

PHYS 263. DESCRIPTIVE ASTRONOMY. Class 3, cr. 3. Not available for credit to students with credit in PHYS 363 or equivalent.

A descriptive non-mathematical course in astronomy intended for non-science students. Topics include: description of the sky, historical development of astronomical thought, observational techniques, the structure and properties of stars and galaxies. Includes required observing sessions.

PHYS 264. TOPICS IN MODERN ASTRONOMY. Class 3, cr. 3. Not available for credit to students with credit in PHYS 364 or equivalent. Prerequisite: PHYS 263 or consent of the instructor.

A descriptive non-mathematical course in astronomy intended for non-science students. Topics include: advanced stages of stellar evolution, black holes, galaxies, peculiar stars, origin and evolution of the universe, and extraterrestrial life. Includes required observing sessions.

Polish

PLSH 101. FIRST COURSE IN POLISH. Class 3, Lab. 1, cr. 3. Available only at Purdue University North Central.

An introduction to the sounds, spelling, basic structure and basic vocabulary of Polish. Speaking is stressed the most, of the four basic skills, through class drills and assignments. A limited amount of grammar introduced in the second half of the semester - this study being spread over 4 semesters to allow more practice at each level.

PLSH 102. SECOND COURSE IN POLISH. Class 3, Lab 1, cr. 3. Available only at Purdue University North Central. Prerequisite: PLSH 101.

Continuation of PLSH 101. Gradually more emphasis placed on spelling and pronunciation as well as on structural study. Continued oral drills combined with enlargement of vocabulary.

PLSH 203. THIRD COURSE IN POLISH. Class 3, cr. 3. Available only at Purdue University North Central. Prerequisite: PLSH 102.

Continuation of PLSH 102. More emphasis placed on structural and grammatical study. First steps in sentence building composition, and translation into English.

PLSH 204. FOURTH COURSE IN POLISH. Class 3, cr. 3. Available only at Purdue University North Central. Prerequisite: PLSH 203.

Continuation of PLSH 203. Final segment of structural and grammatical study. Further steps in composition. Continuation of translation into English. First steps in translation from English into Polish.

Political Science

POL 101. AMERICAN GOVERNMENT AND POLITICS. Class 3, cr. 3.

A study of the nature of democratic government, the U.S. Constitution, federalism, civil rights, political dynamics, the presidency, Congress, and the judiciary.

POL 130. INTRODUCTION TO INTERNATIONAL RELATIONS. Class 3, cr. 3.

Introductory survey of the underlying forces in international relations, the foreign policies of the great powers, and agencies of control and cooperation.

POL 141. INTRODUCTION TO COMPARATIVE POLITICS. Class 3, cr. 3.

Introductory survey of major European governments, including mainly Great Britain, France, Germany, and the Soviet Union, with special attention to historical, cultural, and constitutional developments, the organization and ideologies of political parties, and current political problems.

POL 350. INTRODUCTION TO POLITICAL THEORY: THEORY AND CONCEPTS. Class 3, cr. 3.

An analysis of the most important concepts found in the writings of outstanding political

theorists from the time of the Greeks through the end of the Middle Ages with attention paid to writings of the Reformation period. An examination of two systems of political thought in the western political tradition: the Classical and Christian. The ideas of the theorists are studied in the light of the society and institutions of their time.

POL 370. INTRODUCTION TO COMPARATIVE STATE POLITICS. Class 3, cr. 3.

An introduction to the structure and process of state government, including the legal and political relationships between the state and local units of government.

POL 429. CONTEMPORARY POLITICAL PROBLEMS. Class 3, cr. 3. Prerequisite: POL 101 or 301. (Formerly POL 529.)

Contemporary political problems in the United States affecting the interpretation of democracy, human rights and welfare, social pressures, and intergovernmental relations.

POL 510. POLITICAL PARTIES AND POLITICS. Class 3, cr. 3.

A study of political leadership, pressure groups, political parties, nominating processes, campaign strategies, voting behavior, and money in elections.

POL 560. CONSTITUTIONAL LAW. Class 3, cr. 3. Prerequisite: POL 101.

A survey of selected areas of constitutional law, considering the political and social influences as well as the doctrinal forces which have produced these policies.

Psychological Sciences

PSY 120. ELEMENTARY PSYCHOLOGY. Class 3, cr. 3.

Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking.

PSY 200. INTRODUCTION TO COGNITIVE PSYCHOLOGY. Class 3, cr. 3.

A survey of psychology as the science of mental life, covering theoretical interpretation of experimental research on perception, reading, attention, consciousness, imagery, memory and its improvement, high-speed memory scanning, psycholinguistics, and problem solving.

PSY 203. INTRODUCTION TO RESEARCH METHODS IN PSYCHOLOGY. Class 2, Lab. 2, cr. 3.

The use of scientific method in psychology. Lecture covers principles of collecting and interpreting data, using examples of research from many areas of psychology. In the laboratory portion, the student uses many different techniques from various areas of psychology.

PSY 235. CHILD PSYCHOLOGY. Class 3, cr. 3.

General principles of children's behavior and development, from conception to adolescence, including sensory and motor development, and basic psychological processes such as learning, motivation, and socialization.

PSY 240. INTRODUCTION TO SOCIAL PSYCHOLOGY. Class 3, cr. 3. Prerequisite: PSY 120.

A broad survey of current knowledge about human social behavior. Topics covered include aggression, attraction and love, social influence, attitudes and attitude change, nonverbal communication, leadership, prejudice and discrimination, and application of social psychology to law, medicine, and other fields. (Not open to students with credit for SOC 340.)

PSY 250. PSYCHOLOGY OF ADJUSTMENT. Class 3, cr. 3.

A survey of principles of human adjustment with emphasis on integration of self, perception, control, behavior, and relationships. Solutions to selected problems and anxieties are discussed to illustrate effecting change, building, emotional stability, and preventing maladjustment.

PSY 310. SENSORY AND PERCEPTUAL PROCESSES. Class 3, cr. 3. Prerequisites: MA 147, 153 or equivalent.

Theory, problems, and research in sensation and perception, including physiological bases and measurement techniques.

PSY 311. HUMAN LEARNING AND MEMORY. Class 3, cr. 3. Prerequisite: PSY 201 or consent of instructor.

Theory and research in verbal learning, attention, discrimination learning, thinking, conceptual and organization processes, memory and languages.

PSY 339. ADVANCED SOCIAL PSYCHOLOGY. Class 3, cr. 3. Prerequisites: PSY 201, 240 (or 500).

An in-depth survey of selected topics in social psychology such as aggression, attraction, social influence, social attribution, helping behavior, and cooperation and competition.

PSY 342. INTRODUCTION TO PSYCHOLOGY OF PERSONALITY. Class 3, cr. 3. Prerequisite: PSY 120.

Broad survey of current knowledge about human personality. Several personality characteristics will be covered, including self-esteem, need for achievement, locus of control, authoritarianism, and androgyny. The assessment of personality and the relationship of personality to social behavior will be discussed.

PSY 350. ABNORMAL PSYCHOLOGY. Class 3, cr. 3. Prerequisite: three hours of psychology.

Various forms of mental disorder from the standpoint of their origin, treatment, prevention, social significance, and relation to problems of normal human adjustment.

PSY 391. READINGS IN PSYCHOLOGY. Cr. 1-3. Prerequisite: Consent of instructor.

In-depth reading into specific topic area in psychology, under the guidance of a faculty member. Repeatable for grade up to 6 credit hour maximum; additional credit on Pass/Not Pass basis only.

PSY 420. INTRODUCTION TO PERSONALITY THEORY. Class 3, cr. 3.

Personality theories selected from the traditions of psychoanalysis, behaviorism, and phenomenology-existentialism are presented and contrasted in the fundamental assumptions made by each outlook. Theorists surveyed include Freud, Adler, Jung, Dollard and Miller, Skinner, Bandura, Rogers, Boss, Binswanger, and Kelly.

PSY 500. STATISTICAL METHODS APPLIED TO PSYCHOLOGY, EDUCATION, AND SOCIOLOGY. Class 3, cr. 3.

Descriptive statistics and an introduction to sampling statistics. Application to psychological, sociological, and educational data.

PSY 548. GROUP HUMAN RELATIONS. Class 3, cr. 3. Prerequisite: six hours of psychology.

A concrete introduction to the psychology of personality, the structure and dynamics of small groups, and the formation of development of group cultures. Members constitute themselves into a self-analytic group which analyzes its own processes in relation to the personalities and roles of its members.

Restaurant, Hotel, and Institutional Management

RHI 135. INTRODUCTION TO FOOD SERVICE AND LODGING INDUSTRY. Class 1, cr. 1.

An overview of supervisory careers, opportunities, and responsibilities in the food service and lodging industry.

RHI 210. FOOD SERVICE SANITATION. Class 3, cr. 3.

The application of sanitary and public health engineering principles to food service and lodging operations.

RHI 300. PRACTICUM IN RESTAURANT, HOTEL, AND INSTITUTIONAL MANAGEMENT. Cr. 1. Prerequisite: 15 credits in RHI or consent of head of department.

In-service training and practical experience, totaling at least 300 hours, in an approved food service and/or lodging operation.

RHI 320. RESTAURANT, HOTEL, AND INSTITUTIONAL PROPERTY MANAGEMENT. Class 3, cr. 3.

The systematic internal control of hospitality spaces and equipment to safeguard public health and to utilize available aesthetic values in food and lodging environment.

RHI 337. QUANTITY FOOD PRODUCTION. Class 2, cr. 2. Prerequisite: F&N 205 or 203 or consent of instructor.

Principles of quantity food production, menu planning, and merchandising.

RHI 337L. QUANTITY FOOD PRODUCTION LABORATORY. Lab. 6, cr. 2. Prerequisite or corequisite: RHI 337.

Application of quantity food production principles in a commercial cafeteria and table service operation.

RHI 342. PERSONNEL MANAGEMENT FOR RESTAURANTS, HOTELS, AND INSTITUTIONS. Class 3, cr. 3. Prerequisite or corequisite: RHI 337.

The concepts of management of people for effective operation of restaurants, hotels, and institutions involving supervisory development and communications; the pretesting, training, and evaluating of employees and the development of attitudes and morale of people working together.

RHI 380. SPECIALTY FOOD SERVICE. Class 1. Lab. 6, cr. 3. Prerequisite: RHI 337.

Exploration and creative use of specialty foods and unusual cuisine for the hospitality field. Concepts of management for the effective operation of quantity specialty food service organizations within a financial framework involving menu-planning, customer relations, and production-service logistics.

RHI 438. EQUIPMENT FOR RESTAURANTS, HOTELS, AND INSTITUTIONS. Class 3, cr. 3. Prerequisite: RHI 337.

Principles of selection, operation, and maintenance of food service equipment including materials, structural details, design, cost, performance, and specification standards.

RHI 440. PURCHASING FOR RESTAURANTS, HOTELS, AND INSTITUTIONS. Class 3, cr. 3. Prerequisite or corequisite: RHI 337.

Identifies and describes foods, supplies, equipment, furniture, and furnishings important to quantity food service. Provides methods and criteria for recognizing quality and for evaluating, specifying, purchasing, and inspecting these materials for food service use.

RHI 441. RESTAURANT, HOTEL, AND INSTITUTIONAL ORGANIZATION AND MANAGEMENT. Class 3, cr. 3. Prerequisite: RHI 337.

Factors involved in establishing an institution, business policies and decision making, departmental organization, administrative development including management experience; job analysis and evaluation; salary and wage structures; employee benefits; personnel selection and employment practices including allocation of labor.

RHI 445. COST CONTROLS IN FOOD SERVICE AND LODGING. Class 3, cr. 3. Prerequisites: MGMT 200 and RHI 342.

Application of cost controls; development of cost reduction methods through management policy and decisions; examination of cost control techniques for food, labor, and supplies in addition to the emphasis on beverage management control.

Social Work

SWRK 261. INTRODUCTION TO SOCIAL WORK. Class 3, cr. 3.

Overview of social work profession and practice. Survey of substantive fields of social work and consideration of relevant attitudes, values, ethics. Prerequisite for entry into social work concentration.

SWRK 361. INSTITUTION OF SOCIAL WELFARE. Class 3, cr. 3. Prerequisites: SOC 100, 312, or equivalent.

Examination of philosophical, historical, political, economic, and social trends contributing to the development of social welfare. Current policy and practice issues of social work at micro- and macro-levels. For students contemplating social work as a career.

SWRK 362. METHODS IN SOCIAL WORK I. Class 3, cr. 3.

An upper-level, experientially-based course in basic skills needed for facilitating creative problem exploration in helping relationships. Emphasis on interviewing techniques, values clarification, and examination of one's interpersonal style. Content directed at professional practice rather than personal growth.

SWRK 363. METHODS IN SOCIAL WORK II. Class 3, cr. 3. Prerequisite: SWRK 362.

A continuation of SWRK 362. More intensive work on facilitative problem exploration. Emphasis placed on action skills, creativity in interpersonal problem-solving, and advocacy skills. Content directed at generic skills necessary for generalist social work practice.

Sociology

SOC 100. INTRODUCTORY SOCIOLOGY. Class 3, cr. 3. May not be taken for credit by students of junior or senior standing.

A survey course designed to introduce the

student to the science of human society. Fundamental concepts, description and analysis of society, culture, the socialization process, social institutions, and social change.

SOC 220. SOCIAL PROBLEMS. Class 3, cr. 3. Prerequisite: SOC 100 or 312, or equivalent.

Analysis of problem conditions in modern society-family disorganization, racial conflicts, class struggle, mental illness, narcotic addiction, gambling, alcoholism, and others. Social factors involved in the development, continued existence, and amelioration of these conditions.

SOC 324. CRIMINOLOGY. Class 3, cr. 3. Prerequisites: SOC 100, 312, or equivalent.

Nature and cause of crime; methods of dealing with adult and juvenile offenders; consideration of present programs for the social treatment of crime in the light of needed changes.

SOC 340. GENERAL SOCIAL PSYCHOLOGY. Class 3, cr. 3. Not open to students with credit for PSY 240. Prerequisite: three hours of psychology or sociology.

Social influences on the individual and processes of social interaction. Individual attitudes and behavior as related to socialization, social norms, social roles, communication and propaganda, and other social influences. Among the interaction processes considered are interpersonal attraction, influence, leadership, cooperation, and conflict.

SOC 341. CULTURE AND PERSONALITY (ANTH 341). Class 3, cr. 3. Prerequisite: three hours of anthropology, sociology, child development, or psychology, or equivalent.

A cross-cultural survey stressing differing basic personality types and the processes by which adult personality is acquired. Case studies of selected non-Western cultures will be used to provide comparative perspectives.

SOC 350. SOCIAL PSYCHOLOGY OF MARRIAGE. Class 3, cr. 3. Not open to students who have had CDFL 350.

Designed to provide an understanding of contemporary courtship, marriage, and family interaction social and social-psychological phenomena. Consideration of the major sources of marital strain and conflict within a heterogeneous, rapidly changing society.

SOC 421. JUVENILE DELINQUENCY. Class 3, cr. 3. Prerequisites: SOC 100, 312, or equivalent.

A study of social and psychological factors influencing individual delinquent behavior patterns. Emphasis on preventive and rehabilitative programs and the role of community agencies, such as social service agencies, juvenile courts, and youth authorities.

SOC 591. SELECTED TOPICS IN SOCIOLOGY. Cr. 1-3. Prerequisites: SOC 100, 312, or equivalent. May be repeated for a maximum of six credit hours.

Spanish

SPAN 101. FIRST COURSE IN SPANISH. Class 3, Lab. 1, cr. 3.

Introduction to the basic structure and use of Spanish. Stress is laid on cognates, idioms and similarities with English to make the student aware of how meaning is achieved in language and to improve the student's use of the English language, recognizing that language is a social convention. Minimum objective is understanding parts of speech and how they function.

SPAN 102. SECOND COURSE IN SPANISH. Class 3, Lab. 1, cr. 3. Prerequisite: SPAN 101.

Completes the introduction to the basic grammar of Spanish with increased sophistication of insights into and idiomatic uses of language in general and the importance of precise use of language. Some cultural material is introduced. Emphasis on cognates and Spanish derivatives increases the student's vocabulary in English as well as Spanish. Minimum objectives are general knowledge of basic structure of Spanish and a degree of ease in reading and speaking.

SPAN 112. ELEMENTARY SPANISH CONVERSATION I. Class 1, cr. 1. Prerequisite: SPAN 101. May be taken concurrently with Spanish 102.

Development of oral skills for self-expression. Guided practice in conversation to enhance communicative competence. Small group (enrollment limited to 10 per section) discussions in Spanish on practical topics.

SPAN 203. THIRD COURSE IN SPANISH. Class 3, cr. 3. Prerequisite: SPAN 102.

Emphasizes reading with the objective of teaching the student to read and understand vs. laboriously translating with the use of a dictionary. Short stories and a novellette or drama comprise the texts which provide strong motivation of interest and enjoyment. The beginnings of literary insights are developed as comprehension skill increases. Works of well known, largely contemporary authors are used. Emphasis on reading for enjoyment and practicality. Minimum objective is ability to read simple Spanish of an adult content.

SPAN 204. FOURTH COURSE IN SPANISH. Class 3, cr. 3. Prerequisite: SPAN 203.

Prepares for further study of Spanish. Emphasis on Iberian and Hispanic culture: history, art, literature, and music and Spain's outstanding contribution to belles lettres and to history through such figures as Cervantes and Picasso. Basic objectives are ability to comprehend adult literature and know high points of Spanish cultural history. An excellent general cultural course.

SPAN 210. SECOND-YEAR SPANISH: SPECIAL TOPICS. Class 3, cr. 3. Prerequisite: SPAN 102. May be repeated for credit.

Selected topics on the civilization, culture, and literature of Spain and Spanish America. Lectures and readings primarily in English, but knowledge of Spanish at the first-year level necessary.

SPAN 213. ELEMENTARY SPANISH CONVERSATION II. Class 1, cr. 1. Prerequisite: SPAN 112. May be taken concurrently with Spanish 203.

Continuation of Spanish 112.

SPAN 214. ELEMENTARY SPANISH CONVERSATION III. Class 1, cr. 1. Prerequisite: SPAN 213. May be taken concurrently with Spanish 204.

Continuation of Spanish 213.

SPAN 261. SPANISH COMPOSITION. Class 3, cr. 3. Prerequisite: SPAN 203. May be taken concurrently with SPAN 204. Required of majors and minors in Spanish. Open to others on an elective basis.

More detailed study of Spanish grammar, especially as applied in writing and in translating into Spanish.

SPAN 360. SPANISH CONVERSATION. Class 3, Lab 2, cr. 4. Prerequisite: SPAN 204.

Intensive practice in conversational Spanish. Pattern practice, preparation and delivery of dialogues, and topical talks.

Speech Pathology and Audiology

AUS 210. INTRODUCTION TO COMMUNICATIVE DISORDERS. Class 3, cr. 3.

Nature, symptoms, and causes of communicative disorders and the principal methods used for remediation.

Statistics

STAT 114. ELEMENTS OF PROBABILITY AND STATISTICS. Class 3, cr. 3.

Probability, principles of choice, decision problems, use of data, examples in testing and estimation.

STAT 213. PROBABILITY AND DECISION THEORY. Class 3, cr. 3. Prerequisite: a knowledge of college algebra.

An introduction to basic probability models and to applied decision theory. Applications to problems in the management and social sciences, including use of computer programs.

STAT 225. INTRODUCTION TO PROBABILITY MODELS. Class 3, cr. 3. Prerequisite: MA 224 or equivalent.

An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability, calculus, standard distributions, random variables and moments.

STAT 301. ELEMENTARY STATISTICAL METHODS I. Class 3, cr. 3. Prerequisites: MA 147, 148 or equivalent. Not open to students in the Division of Mathematical Science and Schools of Engineering.

A basic introductory statistics course with applications shown to various fields and emphasis placed on assumptions, applicability, and interpretations of various statistical techniques. Subject matter includes frequency distribu-

tions, descriptive statistics, elementary probability, normal distribution applications, sampling distribution, estimation, hypothesis testing.

Supervision

SPV 100. SUPERVISION LECTURES. Class 1, cr. 1.

Introduction and orientation to the Department of Supervision and an overview of the supervision and personnel functions in the world of work.

SPV 240. LABOR RELATIONS PROBLEMS. Class 3, cr. 3.

Problems of workers with possible solutions as suggested by organized labor and management. Regulations concerning management, labor, the collective bargaining agreement, grievance and arbitration procedures.

SPV 252. HUMAN RELATIONS IN SUPERVISION. Class 3, cr. 3.

Study of the basic concepts related to organizational behavior. Special emphasis on typical supervisory relationships.

SPV 268. ELEMENTS OF LAW. Class 3, cr. 3.

An introductory course with a brief comparison of the American federal system and the parliamentary system of government, and covering law with emphasis on judicial review, and court jurisdiction and procedure in general and basic law in particular.

SPV 350. APPLIED CREATIVITY FOR BUSINESS AND INDUSTRY. Class 3, cr. 3.

A study of the ways individuals can become more creative and how they can develop an environment which encourages creativity within an organization.

SPV 368. LEGISLATION AFFECTING INDUSTRIAL RELATIONS. Class 3, cr. 3.

Wage contracts and payments, workmen's compensation and insurance, injunction, strikes and boycotts, and statutes affecting labor.

SPV 374. SUPERVISORY MANAGEMENT. Class 3, cr. 3.

Introduction to and overview of the fundamental concepts of supervision. Emphasis is placed on the supervisor's major functions and essential areas of knowledge, relations with others and personal development.

SPV 375. BASIC METHODS OF TRAINING FOR SUPERVISORS. Class 3, cr. 3. Consent of academic advisor.

Principles, practices, and variations of basic methods of instruction as related to training situations found in the world of work. Emphasis on the supervisor as a trainer.

SPV 376. SUPERVISION AND PERSONNEL PROBLEMS. Class 3, cr. 3. Prerequisite: SPV 374 or consent of instructor.

Analysis and discussion of selected case problems concerning typical personnel situations faced by the supervisor. Emphasis directed toward development of student attitude, philosophy, analytical ability and problem solving skills within the working environment.

SPV 431. OCCUPATIONAL SAFETY AND HEALTH. Class 3, cr. 3. Consent of instructor and academic advisor required.

A presentation of those aspects of occupational safety and health which are most essential to the first-line supervisor. Emphasis is placed on developing an understanding of the economic, legal and social factors related to providing a safe and healthful working environment.

SPV 462. SUPERVISED WORK EXPERIENCE. Class 3, cr. 3. Consent of department head required.

Supervised work experience directed toward providing orientation, background, and insight into work situations and operations.

SPV 474. CONFERENCE LEADERSHIP TRAINING. Class 4, cr. 4.

Understanding the role of the conference in the world of work, with practical applications of the various techniques of conference leadership. Understanding of group dynamics is also stressed.

SPV 574. MANAGERIAL TRAINING AND DEVELOPMENT. Class 3, cr. 3. Prerequisites: SPV 374, 375. Open to seniors and graduate students only.

Review of current managerial education and development theories and practices; discussion of social, economic, and political changes affecting business and the work of managing; implications of these changes for individual manager development and growth.

SPV 577. ORGANIZATION AND ADMINISTRATION OF TRAINING AND DEVELOPMENT. Class 3, cr. 3. Prerequisite: SPV 375. Prerequisite or corequisite: SPV 574. Open to seniors and graduate students only.

The function and management of training and development in the world of work.

SPV 590. INDIVIDUAL RESEARCH PROBLEMS IN SUPERVISION AND PERSONNEL. Cr. 1-6. Consent of department head required.

Opportunity to study specific problems in the field of supervision and personnel under the guidance of a qualified faculty member within the department. Does not include thesis work.

Technical Graphics

TG 110. DRAFTING FUNDAMENTALS. Class 1, Lab. 5, cr. 3.

A basic course in drawing orthographic projection, pictorial drawing, print reading, and reproduction of drawings. Problems designed to require practical reasoning and develop good techniques.

TG 116. GRAPHICS I. Class 1, Lab. 3, cr. 2.

Basic graphical methods-instrument and freehand-useful in engineering layout and design for analysis and communication. Multiview representation with some sketching and basic dimensioning practices. Auxiliary views with sectioning and some conventional representations. Engineering lectures and counseling for scheduling by Department of Freshman Engineering.

TG 200. INTRODUCTION TO CAD (Computer Assisted Drafting Design). Class 1, Lab. 4, cr. 3. Prerequisite: TG 110 or 116 or 120 or 220 and permission of instructor.

An introduction to computer aided design and drafting systems and applications. Topics include production and manipulation of 2D and 3D drawing, and the utilization and intergration of commercial CAD systems into industry and manufacturing.

GENERAL ADMINISTRATIVE STAFF

DALE W. ALSPAUGH (1957-58, 1959)..... Chancellor; Professor of Aeronautics and Astronautics
M.E., Cincinnati, 1955; M.S., Purdue, 1958; Ph.D., 1965; Professional Engineer, Ohio.

PATRICIA A. BABCOCK (1976)..... Associate Professor of Nursing; Chairperson, Nursing Section
B.S.N., Ball State, 1957; M.A., 1975; Ed.D., 1980; (R.N.).

G. WILLIAM BACK (1969)..... Vice Chancellor for Administration
B.S., Southern Illinois, 1969; M.B.A., Indiana, 1978; J.D., DePaul, 1982.

JUDITH T. BACK (1969)..... Coordinator of Publicity and Publications

BILL L. BARNETT (1979)..... Director of Admissions and Placement
B.S., Purdue, 1978.

HOWARD R. BASHORE (1980)..... Chief of University Police

L. EDWARD BEDNAR JR. (1965).. Assistant to the Vice Chancellor for Academic Services; Associate Professor of Mathematics; Chairperson, Math/Physics Section
A.A.S., Thornton Community College, 1959; B.S.Ed., Western Illinois, 1963; M.S., Northern Illinois, 1965; Ed.D.,Western Michigan, 1982.

ANN M. BERG (1971)..... Technical Assistant, Library
B.S., Minnesota, 1953.

JAMES R. BLACKWELL (1965)..... Associate Professor of Supervision; Chairperson, Community College
B.S., Purdue, 1941; M.A., Louisville, 1953; M.B.A., George Washington, 1964.

LARRY R. BLUHM (1976)..... Applications Programmer, Computing Center

PATRICIA A. CARLISLE (1977)..... Director of Special Services for Disadvantaged Students; Equal Opportunity/Affirmative Action Officer
B.S., Central Michigan, 1965; M.A., Michigan State, 1969.

DIANE M. CARPENTER (1968).....Academic Operations Assistant

ROBERTA A. CHAPMAN (1977).....Administrative Assistant

JOHN T. COGGINS (1975).....Dean of Students; Chairperson, Student Services Section
B.A., St. Thomas (St. Paul), 1967; M.A., 1968.

PATRICIA J. DUFFY (1987)..... Assistant Director of Personnel
B.A., Indiana, 1984.

KEITH C. EDWARDS (1981).....Bursar
B.A., Hanover, 1977.

HOWARD JABLON (1966)..... Professor of History; Chairperson, Social Science and Education Section
B.A., Hofstra, 1961; M. A., Rutgers, 1962; Ph.D., 1967.

PHILLIP E. JANKOWSKI (1981)..... Comptroller
B.S., Indiana State, 1972; M.B.A., Indiana, 1985; C.P.A., 1984.

KENT R. JOHNSON (1981)..... Library Director and Assistant Professor of Library Science
B.S., California, 1971; M.L.S., Indiana, 1979.

J. JEFFREY JONES (1984)..... Assistant Director of Admissions and Placement
B.S., St. Joseph's, 1982.

PATRICIA L. KRETZMANN (1985)..... Accounting Manager
A.A.S., Purdue, 1984; A.A.S., 1985; B.S., 1985

EDWARD M. LACHIEWICZ (1977)..... Superintendent of Maintenance and Utilities

W. PATRICK LEONARD (1985).... Vice Chancellor for Academic Services; Professor of Education
B.S., Indiana, 1961; M.S. 1962; Ph.D., Pittsburgh, 1969; M.B.A., Loyola (Chicago), 1981.

GERALD L. LEWIS (1977)..... Director of Financial Aids
B.S., Wayne St., 1972; M.S., Purdue, 1980.

THOMAS E. LUCAS (1986).....Counselor, Special Services for Disadvantaged Students
B.A., Purdue, 1984; M.A., 1986.

JOHN S. MAPES (1986).....Director of Personnel
B.S., Ohio State, 1953.

H. FRED MILLER (1986)..... Director of Campus Development
B.S., Indiana, 1953.

ELIZABETH J. MURRAY (1977).....Computer Operations Supervisor, Computing Center

THOMAS C. NELSON (1981)..... Director of Physical Plant
B.A., North Park College, 1970.

DEBRA A. NIELSEN (1975) .....Administrative Assistant
B.A., Purdue, 1974.

PAUL J. OSISEK (1986).....Academic Coordinator, Special Services for Disadvantaged Students
B.S., St. Mary's (Maryland), 1970; M.Ed., Springfield, 1971.

JOHN J. PAPPAS (1976).....Professor of English; Chairperson, Letters and Languages Section
B.A., Rutgers, 1955; M.A., Columbia, 1957; Ph.D., 1969.

JACK A. PETERS (1982)..... Director of Student Activities
B.S., Grace College, 1980.

CLYDE L. PORTER JR. (1968)..... Professor of Biology; Chairperson, Biology/Chemistry Section
B.S., South Carolina, 1957; M.S., 1959; Ph.D., Oklahoma, 1963.

NEULAN REHLANDER (1979)..... Superintendent of Buildings and Grounds

GEORGE M. ROYSTER III (1974)..... Registrar
A.B., Indiana, 1962; M.B.A., Kentucky, 1968.

MELINDA D. SELL (1985) .. Director of Purchasing
B.A., Franklin, 1980.

DALE F. STEWART (1979) ..... Director of Computing Center
B.S.E.E., Caltech, 1950; M.S.E.E., Colorado, 1969.

RICHARD L. TAYLOR (1968)..... Associate Professor of Civil Engineering Technology; Chairperson, Technology/Engineering Section
B.S.C.E., Purdue, 1963; M.S.C.E., 1965; Registered Professional Engineer, Indiana-Michigan; Registered Land Surveyor, Indiana-Michigan.

VIKTORIA VOLLER (1984)..... Director of Continuing Education Non-Credit Programs
B.S., North Dakota, 1968; M.S., Indiana, 1976; Fine Arts Certificate, Valparaiso, 1976.

JAMES E. WEISS (1984) .....Systems Programmer/Technician Computing Center
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DONNA E WILLIAMS (1965) .....Administrative Assistant, Library
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EDITH W. WOLD (1983).....Applications Programmer Computing Center
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FACULTY

DALE W. ALSPAUGH (1957-58, 1959)..... Chancellor; Professor of Aeronautics and Astronautics
M.E., Cincinnati, 1955; M.S., Purdue, 1958; Ph.D., 1965; Professional Engineer, Ohio.

JOSEPH E. ANDERSON (1968-74) (1984)..... Associate Professor of Mechanical Engineering Technology
A.A., Chicago City College, 1957; B.S.M.E., Valparaiso, 1959; M.S., DePaul, 1964; Registered Professional Engineer, Illinois-Indiana-California.

GEORGE T. ASTERIADIS JR. (1971)..... Associate Professor of Biology
B.S., State University of New York (Oswego), 1966; Ph.D., Purdue, 1971.

MARILYN J. ASTERIADIS (1972)..... Associate Professor of Nursing
B.S.N., Dayton, 1962; M.S.Ed., Indiana, 1972; M.S.N., Indiana, 1983; (R.N.).

PATRICIA A. BABCOCK (1976)..... Associate Professor of Nursing; Chairperson, Nursing Section
B.S.N., Ball State, 1957; M.A., 1975; Ed.D., 1980; M.A., 1986; (R.N.).

L. EDWARD BEDNAR JR. (1965).. Assistant to the Vice Chancellor for Academic Services; Associate Professor of Mathematics; Chairperson, Math/Physics Section
A.A.S., Thornton Community College, 1959; B.S.Ed., Western Illinois, 1963; M.S., Northern Illinois, 1965; Ed.D., Western Michigan, 1982.

W. BROOKS BIGELOW (1982)..... Assistant Professor of Chemistry
B.S., Delaware, 1965; Ph.D., New Mexico State, 1973.

JAMES R. BLACKWELL (1965)..... Associate Professor of Supervision; Chairperson, Community College Section
B.S., Purdue, 1941; M.A., Louisville, 1953; M.B.A., George Washington, 1964.

L. ROSS BLYTHE (1968)..... Professor of Education
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RAYMOND M. BOBILLO (1964)..... Professor of Supervision
B.S., Ball State, 1950; M.B.A., Illinois Institute, 1967.

ANITA O. BOWSER (1956)..... Professor of Political Science
A.B., Kent State, 1945; LL.B., William McKinley School of Law, 1949; M.A., Purdue, 1967; M.S., Notre Dame, 1972; Ph.D., 1976.

THOMAS F. BRADY (1975)..... Associate Professor of Supervision
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RICHARD M. BREINER (1984)..... Assistant Professor of Communication
B.A., John Carroll, 1971; M.A., Kent State, 1974; Ph.D., 1980.

WILFRED G. BRILL (1964)..... Associate Professor of Physics
B.A., Manchester, 1952; M.S., Purdue, 1955; Ph.D., 1964.

EDWIN F. BUCK JR. (1966)..... Associate Professor of Communication
B.A., Emanuel Missionary, 1944; M.A., Andrews, 1964; Ph.D., Michigan State, 1968.

PATRICIA P. BUCKLER (1986)..... Assistant Professor of English/ Director of Composition
B.A., Bennington, 1970; M.A., Louisville, 1976; Ph.D., 1986.

JOSEPH W. CAMP JR. (1985)..... Assistant Professor of Biology
B.S., Illinois State, 1974; M.S., 1977; Ph.D., Wake Forest, 1980.

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HARRY S. DRIGGS JR. (1969) ..... Associate Professor of Architectural Technology
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LINDA M. DUTTLINGER (1984) ..... Assistant Professor of General Studies
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WALTER H. EVANS (1968) ..... Associate Professor of Computer Technology
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TERRY C. MATTHEWS (1977)..... Professor of Biology
B.S., Colorado State, 1964; M.S., 1965; Ph.D., 1968.

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HARVEY D. MOORE (1973)..... Associate Professor of Education
B.S., Utah State, 1950; M.S., 1953; Ph.D. Utah, 1970.

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FREDERICK C. PATTEN (1983)..... Assistant Professor of Sociology
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ROY B. PAYNE JR. (1982)..... Assistant Professor of General Business
B.S.B.A., Morris Harvey College, 1954; M.B.A., Indiana, 1957.

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B.S.M.E., Purdue, 1943; M.S., Indiana State, 1981.

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CYNTHIA J. PULVER (1983)..... Assistant Professor of Education
B.S., Ball State, 1971; M.S., Purdue, 1976; Ph.D., 1983.

VERNER J. RAELSON (1966-84)..... Professor Emeritus of Physics
B.A., Valparaiso, 1940; LL.B., 1942; J.D., 1942; M.S., Chicago, 1955.

ROGER C. SCHLOBIN (1971)..... Associate Professor of English
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CHRISTOPHER J. SMITH (1984)..... Assistant Professor of Electrical Engineering Technology
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V. SCOTT SMITHSON..... Assistant Professor of Communication
B.A., Eastern Illinois, 1982; M.A., 1983.

HENRY SOKOLOWSKI (1968)..... Coordinator of Academic Advising; Assistant Professor of Foreign Languages
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JOHN J. STANFIELD (1967)..... Associate Professor of English
B.A., Indiana, 1951; M.A., 1961.

WILLIAM L. STOAKES (1968)..... Associate Professor of Electrical Engineering Technology
B.S.E.E., Iowa State, 1949; M.S.E.E., Purdue, 1959.

WHEI MING SU (1979)..... Associate Professor of Nursing
B.S., National Defense Medical Center (Taiwan), 1969; M.A., New York, 1979; (R.N.).

HERMAN A. SZYMANSKI (1977)..... Professor Emeritus of Chemistry
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JOHN W. TUCKER (1972) ..... Professor of Educational Administration
B.A., Brigham Young, 1951; M.A., Arizona State, 1952; Ed.D., Harvard, 1957.

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